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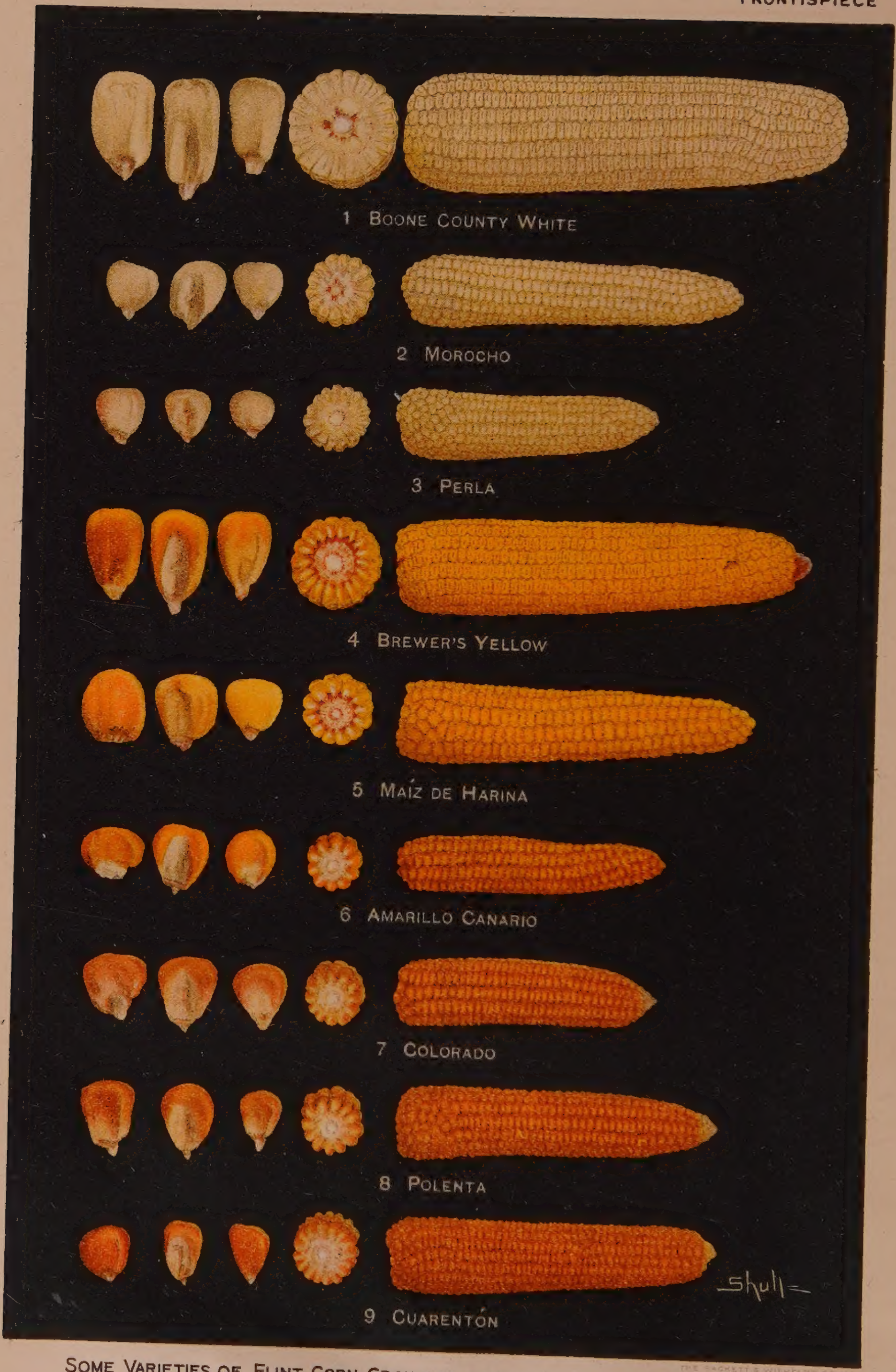

THE SACKETT & WILHELMS CO. N.Y.

SOME VARIETIES OF FLINT CORN GROWN IN ARGENTINA COMPARED WITH BOONE COUNTY WHITE AND BREWER'S YELLOW CORN PRODUCED IN THE UNITED STATES.

YEARBOOK

OF THE

UNITED STATES DEPARTMENT OF AGRICULTURE

1915

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

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* * * * *

[AN ACT Providing for the public printing and binding and the distribution of public documents.]

* * * * *

Section 73, paragraph 2:

The Annual Report of the Secretary of Agriculture shall hereafter be submitted and printed in two parts, as follows: Part One, which shall contain purely business and executive matter which it is necessary for the Secretary to submit to the President and Congress; Part Two, which shall contain such reports from the different Bureaus and Divisions, and such papers prepared by their special agents, accompanied by suitable illustrations, as shall, in the opinion of the Secretary, be specially suited to interest and instruct the farmers of the country, and to include a general report of the operations of the Department for their information. There shall be printed of Part One, one thousand copies for the Senate, two thousand copies for the House, and three thousand copies for the Department of Agriculture; and of Part Two, one hundred and ten thousand copies for the use of the Senate, three hundred and sixty thousand copies for the use of the House of Representatives, and thirty thousand copies for the use of the Department of Agriculture, the illustrations for the same to be executed under the supervision of the Public Printer, in accordance with directions of the Joint Committee on Printing, said illustrations to be subject to the approval of the Secretary of Agriculture; and the title of each of the said parts shall be such as to show that such part is complete in itself.

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YEARBOOK OF THE U.S. DEPARTMENT OF AGRICULTURE

REPORT OF THE SECRETARY.

WASHINGTON, D. C., *November 13, 1915.*

SIR: In spite of the greatly disturbed condition of the world during the last 15 months, agriculture in the United States, as a whole, has prospered. In some sections the war raging in Europe has caused severe hardships and great financial loss, while in other sections its first result at least has been very considerable financial gain. It has borne very heavily on the southern cotton farmer, forcing a great reduction in the price of cotton and an attempt at a hasty readjustment. It has operated to stimulate the production of foodstuffs, and to producers of such commodities it has, in the main, brought increased prices.

The outbreak of the war found this country in a peculiarly fortunate agricultural situation. The year 1914 witnessed an unusually large production of a number of staple crops. The wheat crop of 891,000,000 bushels established the Nation's record and was 128,000,000 bushels larger than that of any other year. The corn crop of 2,673,000,000 bushels, while it was only an average one, exceeded that of 1913 by 226,000,000 bushels. The oats crop of 1,141,000,000 bushels was the third largest on record. The potato crop of 406,000,000 bushels was 74,000,000 bushels larger than that of the preceding year and the second in size in the history of the Nation. The barley crop of 195,000,000 bushels was nearly 17,000,000 bushels greater than that of 1913 and the second largest on record. The tobacco crop of 1,035,000,000 pounds was exceeded only by those of 1909 and 1910. The hay crop of 70,071,000 tons was the third in size, and the cotton crop of 16,135,000 bales exceeded the next largest, that of 1911, by 442,000 bales. The total estimated value of all farm crops and animal products for the year is $9,873,000,000, an amount greater by $83,000,000 than the next largest crop value, that of 1913, notwithstanding the great decrease in the price of cotton.

AGRICULTURAL EXPORTS.

The abundant supplies of foodstuffs made it possible for the country to meet the greatly increased foreign demand and still to retain enough at home to satisfy the normal domestic needs. It was fortunate for our financial relations that these enormous crops coincided with the breaking out of the war. Last fall the question seriously was raised as to how this Nation could discharge to European creditors its floating obligations, amounting at the time, according to the best estimates, to about $400,000,000. It was expected that the exportation of manufactures would decrease, and it was not known that there would be available for export and would be exported such a volume of agricultural commodities. As a matter of fact, between August 1, 1914, and February 1, 1915, the exports were $1,157,000,000 and the imports $771,000,000, giving a favorable balance of $386,000,000. Of the total volume of exports, $662,000,000 represented agricultural and only $495,000,000 nonagricultural commodities, chiefly manufactures. In the same period for the preceding year there were exported $638,000,000 worth of nonagricultural and $722,000,000 of agricultural products, of which cotton alone represented 55 per cent, or $407,000,000, and all other agricultural commodities, chiefly foodstuffs, only $315,000,000. On the other hand, from August 1, 1914, to February 1, 1915, the cotton exports were only $168,000,000 and other agricultural products, mainly foodstuffs, $494,000,000.

The total agricultural exports in the fiscal year ended June 30, 1915, practically the first year of the war, were $1,470,000,000, which is an increase of $356,000,000, or 32 per cent, over those of the preceding year, and of $433,000,000, or nearly 42 per cent, over the average of the five years 1910–1914.

A comparison of exports of the year with those of the preceding year shows that the exports of horses and mules increased from $4,000,000 to $77,000,000, meats and dairy products from $146,000,000 to $220,000,000, wheat (and wheat flour) from $142,000,000 to $428,000,000, corn (and cornmeal) from $7,000,000 to $39,000,000, oats from $1,000,000 to $57,000,000, and barley from $4,000,000 to $18,000,000, while cotton decreased from $610,000,000 to $376,000,000, and tobacco from $54,000,000 to $44,000,000. These products comprise nearly nine-tenths of the total agricultural exports.

A great gain is shown here in the exports of horses and mules. Usually the number of horses and mules exported is insignificant. The total for the year (355,000) represents little more than 1 per cent of the supply in the United States, and was not sufficient to prevent a decline of about 4.6 per cent in the average price.

By far the greatest gain in American agriculture in the first year of the war arose from increased demand for grain. The exports of wheat (and wheat flour) represented about 37 per cent of the crop of 1914, the usual exportation being less than 20 per cent. Farmers received an average of 79 cents a bushel for the 1913 crop and $1.01 for that of 1914—an increase of 22 cents a bushel or an aggregate gain of approximately $196,000,000.

The exports of corn, oats, and barley greatly increased, but, as they were only a small part of the total production, the direct influence on prices was comparatively small. The exports of corn (and cornmeal), 51,000,000 bushels, were less than 2 per cent of the total yield (2,673,000,000 bushels); but, as the crop of 1914 was 226,000,000 bushels larger than that of the preceding year, the exports did not absorb one-fourth of the surplus, and the average price received by farmers was slightly less than that for the 1913 crop. Exports of oats increased from 2,000,000 to 97,000,000 bushels, about 8 per cent of the crop, enough to have some influence on prices. The average price per bushel to farmers was 30 cents, compared with 29 cents the preceding year. Exports of barley, 27,000,000 bushels, were nearly 14 per cent of the crop, sufficient to have material influence on prices; so that, while the production was nearly 10 per cent larger than that of 1913, prices averaged 2 cents higher per bushel.

Although the exports of meats and dairy products rose from $146,000,000 to $220,000,000, or about one-half, they did not prevent a decline in prices to producers of cattle and hogs, possibly because of a still greater increase in available supplies during the year.

THE COTTON SITUATION.

The greatest adverse effect of the disturbance was on cotton marketing. The reason for this may be seen from a few comparisons. Under normal conditions we export more than 65 per cent of the cotton crop, 40 per cent of the tobacco crop, 15 per cent of wheat, 4 per cent of barley, less than 2 per cent of corn, and less than 1 per cent of oats. Or, making the comparison with our total agricultural exports, cotton constitutes approximately 53 per cent of the whole; cottonseed products, 3 per cent; meats and other packing-house products, 15 per cent; wheat (and wheat flour), 10 per cent; tobacco, 4 per cent; corn, oats, and barley combined, about 3 per cent; all others, 12 per cent.

Soon after the outbreak of the war the cotton market became demoralized from fear that exportation would be stopped or materially curtailed and from realization of the fact that the crop would be large. The price to farmers on August 1, 1914, was 12.4 cents per pound. By November 1 it had fallen to 6.3 cents per pound, a reduction of nearly one-half. The cotton crop of 1913 averaged to producers 12.5 cents per pound; that of 1914, 7.3 cents, a decline of over 40 per cent. The total value of the former to producers was $846,000,000; of the latter, $563,000,000; that is, $283,000,000 (or one-third) less, although the production was 14 per cent larger. The meaning of this shrinkage to cotton-growing sections may be realized when it is noted that cotton (and cotton seed) represents nearly two-thirds of the value of all crop production in Georgia and Mississippi, 63 per cent in Texas, 60 per cent in Alabama, and 53 per cent in Arkansas. Interference with the exportation of cotton did not prove to be as great as in the early part of the season it was apprehended it would be; for by June 30, 1915, the total year's shipments were within 8 per cent of those of the preceding year; but the value had shrunk 38 per cent, or from $610,000,000 to $376,000,000.

YIELDS FOR 1915.

The higher prices for grain and the lower prices for cotton stimulated the planting of grain crops in 1915, but caused a considerable reduction in cotton acreage. Coincident with the increased grain acreage and the diminished cotton acreage there was a large yield per acre of grain and only a moderate yield per acre of cotton. The preliminary (not final) estimates of crop production for 1915 indicate that the aggregate will be about 7 per cent greater than that for 1914 and about 17 per cent larger than the average of the preceding five years. If the estimates are approximately correct, there will be record crops of wheat, oats, barley, and hay, the second largest crop of corn, and the third largest of tobacco. The production of potatoes is expected to be about average, at least 10 per cent less than the large crop of 1914. The cotton crop will be a short one, estimated at less than 11,000,000 bales, compared with a production of 16,135,000 bales last year and with an average yearly production in the preceding five years of 13,033,000 bales. This decrease will result from the reduction of about 15 per cent in the cotton acreage and a 20 per cent poorer yield. The quantity of cotton carried over from the 1914 crop will be considerably larger than usual, but, with the smaller production for the year and the larger domestic demand for cotton for manufacture, the amount exported will decrease unless a decided change in foreign prices occurs.

PRODUCTION.

IMPORTANCE OF RESEARCH.

The obvious need of adequate and effective machinery to make available to the farmer the large body of useful information accumulated through the research work of the department, the State experiment stations, and other agencies sharply engaged the attention of the Congress and the country for several years. The result was the passage of the cooperative agricultural extension law in May, 1914. The plans in operation under this act undoubtedly will go far toward accomplishing the desired end.

Farm marketing and finance have demanded and still require the attention of those interested in the welfare of all classes of the American people. A beginning in this field has been made by the establishment of the Office of Markets and Rural Organization, which is at work upon many important problems.

The fact that special emphasis has been placed upon the improvement of methods of disseminating agricultural information and of marketing farm products does not indicate that all the important problems of production have been solved or that the need for agricultural research is being adequately met. This is indeed far from the case. It is increasingly apparent that as the development of our agriculture brings into use other regions, includes new crops, and makes readjustments necessary to meet changing economic conditions, new and vital problems in research continually are coming to light.

Many investigations, while more or less successful from the standpoint of the scientist, have not progressed far enough to yield results which can be applied safely to improve agricultural practice. In agriculture, as in medicine, oftentimes knowledge of the causes of trouble is attained long before a remedy is discovered. In other cases results which have been reduced to practice locally require to be tested more widely or to be modified to suit regional conditions. In some very important lines the researches thus far made or now in progress have been on too small a scale to yield satisfactory results.

The limitations of our agricultural knowledge doubtless will be felt more keenly as the rapidly growing system of extension work develops. Rural people thus will be stimulated to study their conditions more carefully and will discover new problems. The record of the past half century indicates that the country relies very largely upon the Department of Agriculture and the State experiment stations for the solution of such problems. It is clearly evident that when normal conditions are restored it will be desirable for the Congress to consider a well-balanced enlarged program for agricultural research.

It is not proposed at this time to suggest the special problems most urgent and of largest practical importance to agriculture for the investigation of which adequate means have not been provided. Undoubtedly active research should be continued on those which arise in connection with the regulatory activities of the department. Beyond this, provision should be made as soon as practicable for the further development of numerous lines of research related directly to production and distribution. While, as in the past, special attention should be paid to investigations having direct and obvious bearing upon practical agriculture, earnest efforts should be put forth to discover underlying principles.

With the funds at its disposal, the department, through its various agencies, has continued to study problems of production. It has assisted in combating plant and animal diseases, in encouraging plant and animal breeding, in promoting better farm methods, in improving farm business, and in encouraging a better balanced agriculture in the various sections of the Union.

THE MEAT SUPPLY.

In the last annual report particular attention was called to the desirability of increasing the number of meat animals. The department has given added attention to this problem and has extended its activities as far as available funds permitted. The farmer who keeps only enough animals to supply meat to his family, as well as the large ranch owner, has received assistance. The attention of the single-crop farmer has been directed to the need of diversification and the introduction of live stock as essential to a sound agricultural economy. That more beef animals should be produced in the settled areas of the country, particularly in the South, is beyond question. In many sections the feeding of beef cattle is one of the best means of utilizing rough feed and of supplying stable manure for crops.

Considerable work has been done in the South by the Bureau of Animal Industry to develop the practice of feeding cottonseed cake to cattle pastured in summer; and recent experiments have demonstrated the feasibility of feeding calves to produce baby beef. The success of these experiments, it is expected, will lead gradually to a change throughout the entire South. Furthermore, in cooperation with the

State agricultural colleges, the production of pure-bred cattle and hogs in the South is being made possible through the organization of live-stock associations and the introduction of registered beef cattle and hogs for breeding purposes.

In the Great Plains region the problem is to utilize roughage and dry-land grains. Remoteness from market or the necessity for raising crops which must be consumed on the farm makes cattle raising imperative. In the Panhandle of Texas demonstrations conducted by the department indicate that beef production may become a feature of farming in that section. Every year a greater number of cattle is fed there and marketed direct. This practice makes it possible to maintain on a smaller acreage more cattle than the old range conditions permitted and greatly enhances the possibilities of beef production.

PIG AND POULTRY CLUBS.—Among the most promising agencies for increasing the meat supply of the country, and particularly that of the individual farm, are the pig clubs. These organizations have been developed as rapidly as funds permitted. Originally started in the South, the clubs have extended into many Northern and Western States, and during the year they had a membership of about 9,000 boys and girls. In 11 counties in Georgia where pig-club work is conducted, 11,000,000 pounds of cured pork were produced during 1914. A large percentage of the farmers in these counties also are producing pork; and the hogs in pig-club communities are increasing rapidly in quality, size, and value. Over 2,000 registered hogs, of which 75 per cent are sows, are owned by pig-club members.

Poultry clubs likewise have received much attention. These have been organized in 98 counties in 6 Southern States, with a total membership of 4,000. The members are raising poultry for the family table, and the clubs are becoming centers for the development of the community breeding of poultry.

Elimination of disease.—Last year the ease with which the meat supply can be increased materially by controlling or eliminating the common live-stock diseases was pointed out. The direct losses from them are enormous. It is impossible to give any accurate statement even of direct losses. The indirect losses, which also are great, can not be estimated at all. It has been conservatively estimated on the basis of data for 30 years that the annual direct losses from animal diseases are approximately $212,000,000. The loss ascribed to each disease is as follows:

Hog cholera	$75, 000, 000
Texas fever and cattle ticks	40, 000, 000
Tuberculosis	25, 000, 000
Contagious abortion	20, 000, 000
Blackleg	6, 000, 000
Anthrax	1,500, 000
Scabies of sheep and cattle	4, 600, 000
Glanders	5, 000, 000
Other live-stock diseases	22, 000, 000
Parasites	5, 000, 000
Poultry diseases	8, 750, 000

The necessity for vigorous prosecution of work to prevent these losses is obvious. It has been emphatically impressed upon the country since the last outbreak of foot-and-mouth disease, the appearance, spread, and control of which are discussed more fully in another part of this report.

The cattle tick.—The work of eradicating the cattle tick in the South has been prosecuted with energy, and its progress is making possible a fuller development of the cattle industry in that section. To June 30, 1915, 253,163 square miles had been freed of this pest, 37,255 square miles being opened up during the year. Wherever areas are released from quarantine the cattle industry receives a marked impetus. The northern markets for beef cattle and feeders are open to southern farmers and the southern market to northern breeders. The elimination of the tick is of great importance to all sections of the country and consequently is a matter of national concern.

Hog cholera.—While the eradication of hog cholera must be the work of many years and the department is not ready to suggest any one plan which gives reasonable promise of ultimate success, there is no question that the use of properly prepared serum already has had a pronounced effect. Great numbers of hogs have been saved. The systematic eradication work conducted in certain counties in 16 States shows that 178 hogs in a thousand died from cholera in 1912, 168 in 1913, and only 49 in 1914. Only 62,690 died in these counties in 1914, as compared with approximately 200,000 in each of the two years preceding.

Public grazing lands.—An important factor in connection with the country's meat supply is the public grazing domain. The lands outside of the National Forests, of which there are about 280,000,000 acres, are not supporting the number of meat-producing animals they should. In the absence of any control by the Government these lands have been overgrazed. That they can be restored to their former usefulness is proved by what has been accomplished on the National Forests and in Texas. On the Forests under regulated grazing the number of stock has been increased 50 per cent. Practically the same increase has been secured in Texas under its leasing system. There should be a classification of the remaining lands at the earliest possible date to determine their character and to secure information upon which to base plans for their future improvement and use and for the distribution among settlers of those portions upon which it is possible to establish homes.

FOOT-AND-MOUTH DISEASE.

An outbreak of foot-and-mouth disease in the fall of 1914 presented a serious menace to the live-stock industry of the United States. First appearing in the vicinity of Niles, Mich., the malady spread to 22 States and the District of Columbia. Work of eradication was undertaken by the department in cooperation with the authorities of these States.

Foot-and-mouth disease, or aphthous fever, is highly infectious. It is confined chiefly to cloven-footed animals and is characterized by an eruption on the mucous membrane of the mouth and on the skin between the toes and above the hoofs. So rapid and sweeping is its spread that when the infection once gains access to a herd or a farm practically every susceptible animal is soon attacked. Although the mortality usually is low, heavy economic losses result from the interruption and derangement of business.

Previous outbreaks.—This disease has prevailed in Europe for a great many years and has caused enormous financial losses. It also is common in portions of South America and in the Orient. Only occasionally has it reached the United States. The present is the sixth known visitation. The first three outbreaks, in 1870, 1880, and 1884, were comparatively trifling; those of 1902 and 1908 were more grave; while the latest is the most serious and extensive of all.

In 1870 the infection was brought into Canada with cattle from Scotland. It spread into the New England States and New York but disappeared after a few months. About 1880 two or three lots of animals affected with the disease were brought to the United States; but no trouble followed. In 1884 there was a small outbreak at Portland, Me. The disease spread to a few herds outside the quarantine station, but, owing to the small number of animals and the limited area affected, it was easily controlled.

In November, 1902, the malady was discovered in Massachusetts and Rhode Island and later involved New Hampshire and Vermont. The source of the infection probably was imported cowpox vaccine virus contaminated with the virus of foot-and-mouth disease. This outbreak was eradicated in about six months. The methods consisted of inspection to trace and detect the disease, quarantine of infected premises and territory, slaughter of diseased and exposed animals, and disinfection of premises. Two hundred and five herds, comprising 3,872 cattle, as well as 360 hogs and 320 sheep and goats, were slaughtered. The animals were appraised before slaughter and the Federal Government reimbursed the owners to the extent of 70 per cent, the States paying the remainder. The total cost to the Department of Agriculture of controlling the outbreak was about $300,000.

The disease next appeared early in November, 1908, in cattle near Danville, Pa. It was traced to the stockyards in East Buffalo, N. Y., and to Detroit, Mich., and extended to other points in Michigan, New York, and Pennsylvania, and to Maryland. Investigation demonstrated that the outbreak started in calves used to propagate vaccine virus at an establishment near Detroit and that the source of the infection was contaminated Japanese vaccine virus. Vigorous measures similar to those employed in 1902–3 at once were put into effect, and the disease was stamped out in about five months, at an expense to the Department of Agriculture of approximately $300,000, and to the States of $113,000. The Federal Government paid two-thirds and the States one-third of the appraised value of the animals slaughtered. One hundred and fifty-seven premises were infected and 3,636 animals were destroyed.

In all the early outbreaks the contagion was introduced with imported animals. Since the establishment by the Department of Agriculture of a stringent system of inspection and quarantine of imported live stock no infection from that source has occurred. On subsequent occasions the disease evidently has been brought in with contaminated products or materials, and not by means of live animals. Early conditions were unfavorable to its extension and made its control possible without rigorous measures. The limited movement of live stock, the comparatively small extent of commerce and transportation, and the relative infrequency of travel at that period all tended to restrict the spread of the infection.

THE 1914 OUTBREAK AND DIFFICULTIES OF DIAGNOSIS.—The latest invasion, discovered near Niles, Mich., proved to be the most serious and extensive ever known in this country. Toward the end of August, 1914, the attention of the State veterinarian of Michigan was called by local veterinary practitioners to a disease resembling foot-and-mouth disease in two or three herds of cattle in Berrien County. It was not until October 15 that it was recognized positively in the department as the foot-and-mouth malady. This delay in diagnosis was due to a combination of circumstances, especially to the fact that the infection at first was unusually mild and the lesions were obscured or obliterated by lesions of necrosis or decayed tissue.

After visiting the locality the State veterinarian consulted an assistant veterinary inspector on the meat-inspection force of the Bureau of Animal Industry at Detroit (in the absence of the inspector in charge), and together, on September 3, they made an examination of the cattle. They failed, however, to recognize the affection as foot-and-mouth disease on account of its mild type, the absence of characteristic lesions, and the presence of lesions having the appearance of necrotic stomatitis, or sore mouth. In other words, instead of the typical vesicles or watery blisters, there were present scabs and pus from necrotic ulcers and the odor of necrotic stomatitis. The findings reported by the assistant inspector to the department by telegraph, and also by letter, were that the lesions were characteristic of necrotic stomatitis and that the affection was not foot-and-mouth disease.

A few scrapings forwarded to the pathological laboratory of the Bureau of Animal Industry at Washington apparently indicated a form of stomatitis. They arrived, however, in such a condition as to render it impossible to make a positive diagnosis. In view of the diagnosis of necrotic stomatitis already made, the prevalence of that trouble as reported continuously by different branches of the bureau's service, and the absence of any hint of the presence of foot-and-mouth disease in the United States since 1909, the conclusion of the State veterinarian and the assistant inspector, both of whom had had experience during the outbreak of 1908–9, was not questioned.

It is very difficult and often impossible to make a diagnosis from a bit of tissue. Mixed infection, such as was presented in the case in question, frequently leads to erroneous conclusions. As the virus of foot-and-mouth disease can not be seen with the microscope and will pass through the finest filter, ordinary laboratory procedure will not determine its presence. Inoculation of the usual laboratory animals likewise is insufficient. In the circumstances it is not surprising that a laboratory examination of the pus and scabs failed to disclose the true character of the malady.

On September 24 the pathologist of the State Live Stock Sanitary Commission visited an infected farm near Niles, made an examination of the cattle, and collected specimens, without arriving at a diagnosis of foot-and-mouth disease. Two days later the State veterinarian and the pathologist visited this same farm and several others. The pathologist expressed the belief that the malady was foot-and-mouth disease and suggested to the State veterinarian that he telegraph this opinion to Washington and request that, while awaiting the results of a laboratory examination, an investigation by an expert be made. The State veterinarian agreed with him as to the fact, but thought that the matter should be taken up with the local office of the Bureau of Animal Industry in Detroit instead of directly with the Bureau at Washington. The pathologist took the specimens to Lansing, and on September 28 inoculated a calf. By October 1 the calf showed fever, drooling, and mouth erosions; but the case was not diagnosed as foot-and-mouth disease because of the absence of foot lesions. Neither these visits, these opinions, nor the results of the inoculation were made known to the department in Washington until October 10.

The pathologist connected with the office of the State veterinarian of Indiana, on October 12, received specimens from infected animals and made cultures which upon microscopic examination disclosed the necrosis bacillus. The presence of this organism was considered sufficient to indicate that the lesions were those of necrotic stomatitis.

On October 5 the State veterinarian of Michigan, the president of the Live Stock Sanitary Commission, and the inspector in charge of the office of the Bureau of Animal Industry at Detroit went to Berrien County to make another examination. A letter from the inspector, in which he included no diagnosis but described in detail certain symptoms pointing to the possibility of foot-and-mouth disease, was received by the chief of the bureau in Washington Saturday afternoon, October 10. This was the first information to reach him giving ground for suspicion that foot-and-mouth disease might be present. The inspector at Detroit had not had any experience with this malady and for that reason did not attempt a diagnosis. An expert was sent from Washington to Michigan on the first train after the letter was received, while calves were inoculated at the bureau's experiment station near Washington. In addition to physical examination, calves also were inoculated by the expert on the ground.

SPREAD OF INFECTION AND STEPS FOR ERADICATION.—Immediately after the discovery of the true nature of the disease a force of inspectors was dispatched to the infected locality. A thorough canvass disclosed, up to October 17, 39 infected herds in southern Michigan and 7 in northern Indiana. An order, effective October 19, was issued, placing under quarantine the counties of Berrien and Cass, in Michigan, and St. Joseph and Laporte, in Indiana.

The infection seems to have been carried in milk to the creameries at Buchanan, Mich. The skimmed milk was fed to hogs and the disease was communicated to them. A carload of the hogs, before these facts were known, was shipped to Chicago and doubtless carried the infection to the Union Stock Yards there. From that point it was spread by shipments of live stock to various parts of the country. Some of the large eastern stockyards became involved, and the disease was disseminated from them. It extended to the following States, besides the District of Columbia: Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Virginia, Washington, West Virginia, and Wisconsin.

On October 28, when the movement of stock from the originally infected center in Michigan had been traced to the Union Stock Yards, an order was prepared, effective October 31, quarantining those yards and permitting animals to be shipped from them only for immediate slaughter. Numerous other quarantine orders were issued from time to time as infection was discovered or as other conditions warranted. They not only prohibited or restricted the movement of certain farm animals but regulated the movement of hay, straw, and other possibly dangerous materials.

Steps were taken to enlist in the work of eradication the aid of the authorities of the States affected. Satisfactory arrangements rapidly were made, and the work has been prosecuted jointly by the department and the States. The costs incurred have been divided about equally between the Federal and State Governments.

METHODS AND PROGRESS OF ERADICATION.—The methods of eradication were similar to those used in the outbreaks of 1902 and 1908, with such improvements in detail as experience suggested. The veterinary and other forces of the Bureau of Animal Industry in various parts of the country were drawn upon in order, with the least possible delay, to place inspectors where they were needed. It was necessary to trace the movement of live stock from infected premises and regions, to examine railway and stockyard records, to trace and locate cars that had carried infected stock, to clean and disinfect them, to go from farm to farm and examine all susceptible animals, to enforce local and general quarantines of the Federal and State Governments, to slaughter and bury as quickly as possible all diseased and exposed animals, and to disinfect the premises that had been occupied by them. To avoid the spread of infection by inspectors and other employees these men were required to wear rubber outer clothing, which could be washed easily with disinfectants, and to fumigate and disinfect themselves before leaving premises visited by them. Before slaughter the animals were appraised by an official agreed upon by the State authorities and the department, and the owners later were paid the stipulated amount. The appraisal was based upon the meat or dairy value of the animals.

For a time the disease continued to appear in new territory and new cases were found more rapidly than it was possible to dispose of old ones. After months of vigorous work, however, the outbreak was brought under control, the spread of the disease was checked, and there was a steady diminution in the number of cases. On June 18, 1915, the last herd known to be infected at that time had been slaughtered and buried and the premises disinfected.

Sources of infection.—The exact origin of this outbreak has not been discovered, although there seems to be no doubt that the infection was introduced from a foreign country. An effort was made to trace the source of infection of each diseased herd, and the information obtained has been classified. The principal means of transmission was the shipment of animals directly from public stockyards (707 out of a total of 3,021 herds investigated). Neighborhood visiting caused infection of the next largest number (509); direct contact with neighboring animals, of 346; animals brought from infected stables or lots, of 285; creameries, of 269; and dogs, poultry, and birds, of 146.

THE NATIONAL DAIRY SHOW HERD.—The cattle exhibited at the National Dairy Show in Chicago, October 22–31, 1914, constituted a special problem. Before its opening the local inspector of the Bureau of Animal Industry warned the manager of the danger of holding it because of the recent discovery of foot-and-mouth disease. At the close of the show the department, as a precautionary measure, requested the State veterinarian to detain the cattle for a few days to determine whether they had become infected. On November 1 one of the cows developed the disease, and the herd immediately was placed under close quarantine by the State.

This herd consisted of over 700 head of very valuable pure-bred cattle. Their slaughter would have been a misfortune. The conditions under which the animals were held made it possible to maintain a quarantine, and it was decided to try to save them. They were confined in a brick building, where it was practicable to establish hospital conditions and to prevent ingress and egress of persons and animals except under absolute control. All persons were prohibited from leaving the building until they had been thoroughly disinfected. No dogs, cats, poultry, or birds could gain access to the building. Apparently the animals made a complete recovery, and were released from quarantine May 31, 1915, after very thorough tests had demonstrated that the herd did not harbor infection.

RECURRENCE OF THE DISEASE.—On August 8, 1915, the local inspector in charge of field work at Chicago telephoned to Washington that a case of foot-and-mouth disease had been discovered among 119 hogs and 4 cattle at Wheeling, Cook County, Ill., 22 miles north of Chicago. It seems certain that this infection was produced by contaminated-hog-cholera serum prepared in Chicago in October, 1914, at an establishment where the disease had not been known to exist at any time. This material had been kept in cold storage and was not used until the quarantine restrictions had been removed in July, 1915, and after negative tests on hogs had been made. Pending investigation, all shipments of serum from Chicago were prohibited. It was found that some of the product of the establishment had been used on 11 herds of hogs, 8 of which were in Illinois and 1 each in Minnesota, Michigan, and Indiana. A few infected hogs were found in eight of the herds, and all these herds, as well as the three in which no disease was found, were slaughtered at once.

A portion of the serum actually used was procured from the owners of the hogs, together with samples of the remaining stock of the company. Pigs and calves, the animals most susceptible to the disease, were inoculated with these. The results again were negative, and after two series of tests had been made the Federal Public Health Service was asked to conduct a third series. This also was negative.

Up to this time, therefore, four series of tests had been made, in which a total of 52 animals had been used, none of which developed foot-and-mouth disease. The inoculations afforded no evidence that the serum in any way was contaminated. Each series apparently only confirmed the test made before the material was permitted to be placed upon the market. The fact remained, however, that the hogs treated by the owners had developed the disease. A fifth test therefore was made, and 10 days after inoculation a calf, which was the sixty-second animal used in the tests, developed characteristic lesions. The diagnosis of foot-and-mouth disease subsequently was confirmed by the inoculation of other animals with material from the infected calf.

This is regarded as proof that the suspected serum actually was infected. Why the standard tests used on 61 animals failed to reveal this fact is a matter for scientific investigation, and the bacteriologists of the department are at work upon the problem. At the time of manufacture one-half of 1 per cent of carbolic acid was mixed with the serum as a preservative. It is now believed that the acid, acting as a germicide, may have attenuated or partially destroyed the virus so that tests previously considered safe failed to establish the presence of the infection. It also is possible that the virus, instead of being disseminated throughout the entire mass of serum, may have become agglutinated. This has been known to occur with germs of other diseases. The result would be the formation in the fluid of isolated clumps of foot-and-mouth disease virus, while the bulk of it remained free from these tiny masses. If this occurred it is obvious that certain animals inoculated with the serum would develop the malady and others would escape. Up to the present time the germ has not been identified, although the scientists of Europe have studied the disease exhaustively for many years.

Experiments are being prosecuted vigorously in the department with a view to discover a means of treating serum at the time of its manufacture which will kill the virus of foot-and-mouth disease. The results so far attained are promising, and the department hopes that a successful method soon will be evolved. In the meantime all infected serum in the hands of the manufacturer, as well as all other suspected serum manufactured in Chicago, has been destroyed. Furthermore, the department is prohibiting the shipment of serum from licensed establishments in the districts under quarantine for foot-and-mouth disease.

Appraisements of diseased animals.—In the handling of the problem difficulties arose because of the fact that the department in making appraisements of diseased animals did not feel authorized to take into consideration their breeding value. In some cases fine herds were involved. In all the discussions of the matter before the Agricultural Committees of the Congress the beef or dairy value was indicated as the basis for appraisal, and in former outbreaks this basis was used. The suggestion was made that the department be authorized to take breeding value into consideration; but the Congress, in making an appropriation to reimburse the owners of the National Dairy Show herd for expenses incurred by them incident to the quarantine, specifically provided that the beef or dairy value only should be the basis of the appraisement. As the disease still prevails in certain parts of Illinois, and there is no guaranty that it may not spread, it would seem that for the ensuing year an appropriation equal to the current one should be made. It may not be necessary to expend the appropriation; but it would be exceedingly unfortunate if the disease were to spread or reappear and the department had no adequate funds or authority. The estimates contain an item covering this matter. In connection with it the suggestion is made that in payment for animals hereafter purchased for slaughter the appraisement may be based on the beef, dairy, or breeding value, provided that in case of appraisement based on breeding value no payment for any animal shall exceed three times the beef or dairy value. Both equity and practical expediency justify taking breeding value into account. The practical consideration is this: Prompt action is of the highest importance, and if owners feel that they will not receive a fair return they may resist the Federal and State authorities. A maximum limit also seems essential to speedy settlement. The department would exercise the requisite care and is not apprehensive that extravagant appraisements would be permitted.

HOG CHOLERA AND SERUM.

Experiments for the purpose of determining the best method to control or eradicate hog cholera demonstrate that, by employing certain systems involving the use of hog-cholera serum, losses can be reduced to a minimum and the swine industry greatly benefited. The work also shows, however, that success over a large territory would require the employment of an immense force of men and the expenditure of enormous sums. It seems that, at the present time, a country-wide campaign for the eradication of the disease would be ill advised. The problem is not one for the Federal Government alone. Before an active campaign is begun the various States should have more effective laws relating to diseases of live stock and more extensive organizations for enforcing such laws.

In round numbers there are produced annually in the United States 200,000,000 cubic centimeters of serum. Of this amount, approximately 50,000,000 cubic centimeters, or about 25 per cent, are prepared by State governments. Serum is produced by the Federal Government for experimental purposes only. The remaining 150,000,000 cubic centimeters are manufactured by private establishments. It is probable that there are in operation in the United States between 90 and 100 such establishments. Of these, 81 have secured licenses from the Department of Agriculture under the virus-serum-toxin act of 1913, and thereby are enabled to carry on interstate business. Of the total quantity of serum privately prepared, it is estimated that more than 90 per cent comes from plants holding licenses from the department.

THE VIRUS-SERUM-TOXIN ACT.—The statute prohibits the shipment from one State or Territory to another State or Territory of any virus, serum, toxin, or analogous product which has not been prepared at a plant holding an unsuspended and unrevoked license from the Department of Agriculture. It also is made unlawful to ship interstate any virus, serum, toxin, or analogous product which is worthless, contaminated, dangerous, or harmful.

The department is authorized to make and promulgate such rules and regulations as may be necessary to prevent the preparation, sale, barter, exchange, or shipment in interstate commerce of worthless or contaminated viruses, serums, etc. It is provided that a license shall be issued on condition that the licensee shall permit the inspection of his establishment and of the products and their preparation. The department may suspend or revoke licenses after opportunity for hearing has been granted. The law gives authority for Federal agents or employees to enter and inspect any licensed plant at any hour. Penalties of fine or imprisonment, or both, are provided for violations.

In carrying out the virus-serum-toxin act the department has issued regulations designed to prevent the interstate shipment of worthless, contaminated, dangerous, or harmful hog-cholera serum, hog-cholera virus, and other products. Fifty-six trained inspectors are assigned to the work of inspecting the licensed plants and detecting violations of the law. A number of violations, particularly shipments of serum not prepared at establishments holding licenses, have been discovered and successfully prosecuted. Notwithstanding the efforts of the department, apparently there have been shipments of contaminated or worthless serum by licensed companies. These occurrences have resulted in part from the ignorance or carelessness of the owners. In some cases they have been due, perhaps, to cupidity; in others, to novel situations presented by the unexpected outbreak of foot-and-mouth disease.

There seems to be a widespread belief that the products of a licensed establishment in some way are certified or guaranteed by the Federal Government. Under the existing system it has not been possible for the department to assure users of the quality of such articles. The business of serum production is such that supervisory inspection alone, without complete control, and with power to penalize violations of the law only by revocation of licenses or by prosecution, is not sufficient to warrant the assumption by the Government of responsibility for the products.

CONTROL OF SERUM PRODUCTION.—The recent cases of infection of serum and virus with foot-and-mouth disease indicate that some more effective form of control over serum production is most desirable. It has been suggested that the object could be accomplished by Government ownership. While there is much to be said in favor of such a plan, it seems doubtful whether it would be practicable. Certainly it would seem unwise for the Government to produce the material unless it could control the entire output. Recent information shows that 21 States have established plants and now are engaged in the production of serum on a comparatively large scale. It is a question whether these States, with their active organizations, would wish or consent to discontinue the work. Aside from this, the purchase of the establishments now in existence and the erection of others by the Federal Government would necessitate a large outlay. Even though this expenditure were made, it must be remembered that Government officials are liable to error, and that Federal manufacture, though it secured honesty of methods, would not serve as a guaranty that no contaminated or worthless serum would be sold.

GOVERNMENT TEST STATION.—As a substitute for Government ownership, the following plan merits careful consideration:

(1) Continue the inspection service as at present constituted under the act of 1913, maintaining a sufficient force of inspectors so that all important processes of licensed establishments may be carried out under the constant supervision of department employees; and require that all products after preparation be securely locked up by employees of the department, whose duty it shall be to withdraw representative samples.

(2) Provide by law for—

(*a*) The establishment and maintenance of a "Government test station" for serum. The purpose of this station would be to receive official samples of all serum produced by licensed plants and to test them for purity and potency. Upon completion of the test the official in charge immediately would make known the results to the inspector at the plant from which the sample was derived, and the material, if found potent and pure, then would be released with proper markings or seals to show that it had been tested.

(*b*) The prohibition of the interstate shipment of any product a sample of which had not been tested and found pure and potent.

(*c*) The imposition of a tax upon all serum, samples of which have been tested, with adequate provision for the affixing of tax stamps and marks prior to sale or shipment.

The available methods for determining purity and potency are not scientifically exact. Tests, however, are a necessary and most important part of any system of control. They are now made by the commercial establishments themselves on animals procured by them and at all times under their care. It is impracticable for the Government to make them within privately owned and operated plants. Furthermore, so long as the plants conduct the tests, it is manifest that the Government can not select and know the complete history of the animals. In the preparation of the serum the inspectors can see that the steps necessary to produce a good article are carried out. In this particular the inspection is adequate and effective. It appears, therefore, that the weak point at present is the inspection of the tests, and the department believes that these should be under Government control. At the same time, not being absolute, they should be supplemented. Supervision at the producing plants of the methods of preparation and handling should be continued.

It is probable that an adequate test station could be provided for about $50,000. If several were found to be desirable, a suitable appropriation for each would have to be made. The cost of maintaining a station capable of testing the entire output of commercial serum in the United States probably would not exceed $150,000 annually.

The suggestion is made that a tax sufficient to cover the cost of maintaining the station should be imposed. This tax should not operate to increase the cost of serum to the farmer, because manufacturers would be relieved of the expense of conducting their own tests. While the plan indicated contemplates control only of serum intended for shipment in interstate commerce, it is likely that the States would take similar action and apply similar rules to their own plants as well as to private establishments doing business wholly within the State. The plan probably would be effective and would require little additional expenditure of public funds.

CITRUS CANKER.

The citrus industry of the Gulf States is seriously threatened by citrus canker. This has been found to be a highly infectious bacterial disease. An emergency appropriation of $35,000, which became available January 28, 1915, enabled the department to cooperate with the States of Florida, Alabama, Mississippi, Louisiana, and Texas in an effort to eradicate the trouble, the department bearing the cost of the inspection work, while the expense incident to the actual destruction of trees was borne by the respective States. The work of inspection and eradication has progressed very satisfactorily, although the disease is more widely scattered and is more serious than at first was supposed. In Texas, Mississippi, and Alabama the greater number of the infected centers have been eliminated, and, if it is possible for these States to maintain a thorough inspection during the coming year, there appears to be no reason why the disease should not be completely eradicated from these regions. In Louisiana and Florida the greater portion of the infected areas seems to be under control, but the complete elimination of the disease, especially from the latter State, probably will require large expenditures for at least two years.

POTASH SUPPLY.

The potash situation continues very serious and a grave condition confronts the American farmer. There is practically no potash in this country for fertilizer use, and present indications are that the supply for this purpose will not be increased materially during the coming year. The investigations of the department and of the Geological Survey have shown the possibility of producing from American sources an ample quantity of potassium salts for domestic consumption. During the year no new sources have been discovered, but the conditions surrounding the development of known sources have been clarified considerably. There are four possible domestic sources of potash: The giant kelp of the Pacific coast from Lower California to Alaska; the alunite deposits, mainly in the mountains of Utah; the feldspathic rocks of the eastern part of the United States; and the mud of Searles Lake, in California.

Undoubtedly a large supply of potash salts could be obtained from the giant kelp. The kelp beds have been surveyed and a report, accompanied by maps showing in detail their extent and location, has been issued. Harvesting is accomplished easily, as the kelp grows in open water and barges fitted with mowing attachments can be used.

For utilizing the kelp several methods are feasible. It may be dried and ground. In this condition it contains all the salts originally present, which are mainly potassium chlorid and sodium chlorid. This material has ideal mechanical properties for use in mixed fertilizers. When the pure potassium chlorid is desired it is necessary to separate the juice from the organic material and then to remove the sodium chlorid. The latter can be done readily by recrystallization; but the separation of the juice from the organic material is more difficult, for the reason that the kelp is nonfibrous and in attempts to effect separation by filtration the filters become clogged and unworkable. The problems yet to be worked out commercially are the best methods of drying the wet kelp and of effecting the ready and efficient separation of the plant juices from the organic material. Investigation of these questions has proceeded far enough to indicate that their solution should not be very difficult.

But the development of a supply of potash from the kelp beds is still remote. There are several reasons for this. No one knows how long the European war may last or how soon potash from the former usual sources may be available. The American fertilizer companies heretofore have depended largely on the mining of phosphate rock and the manufacture of sulphuric acid for superphosphates. In these lines they are deeply interested financially. There is, furthermore, an element of doubt as to the control of the kelp beds. Just what jurisdiction the Federal Government has over them does not appear, and the Pacific Coast States have not legislated concerning those lying opposite their shores. It is unlikely, even in the event of an early peace, that there immediately will be a great supply of potash salts. It is a question how long it would take the former agencies to resume their usual operations. The experts of the department are of the opinion that under normal conditions, if the Panama Canal is utilized, potash from the kelp beds of the Pacific coast can be sold in the East under free competition.

Next to the kelp the massive alunites present the best possibilities as a source of potash. This material is decomposed by roasting, with the evolution of oxids of sulphur, and a residue consisting of alumina and potassium sulphate remains. From this residue the potassium salt can be obtained readily by leaching and evaporation. The process is simple. The fumes liberated could be used to manufacture sulphuric acid; but this commodity would be in little demand in the locality and some method of disposal or utilization would have to be devised. Alumina resulting as a by-product would be suitable for the manufacture of metallic aluminum; but this metal is produced by one concern, which controls sufficient bauxite deposits for its purposes and is not interested in other sources of alumina.

Work has been done along the line of producing potash from feldspar. This is commercially feasible if a salable by-product can be secured at the same time. The suggestion has been made by the Bureau of Soils that cement is a possible product from the feldspar treated to render the potash soluble. But the difficulty of marketing this cement in competition with thoroughly standardized products would be a great deterring factor.

The development of Searles Lake as a source of potash presents a number of unsolved technical problems. In addition, the question of title to the property is so involved that considerable time will elapse before it can be settled. In the meantime nothing can be done.

It is a matter of distinct regret that responsible business concerns have not made more earnest efforts to provide potash for agricultural purposes. Only recently, although the need of potash has been felt for a year, two companies have begun to develop a supply from alunite, but undoubtedly it will be some months before any considerable quantity from this source can be placed upon the market.

MARKETING AND DISTRIBUTION.

Public interest in the problems of marketing and distribution still is keen. This is reflected in requests for information and assistance so numerous as heavily to tax the Office of Markets and Rural Organization. The department has continued, with the increased funds at its disposal, to develop its organization for studying these problems by adding to its staff the best trained men available. Very satisfactory headway has been made and results of much value have been secured.

It perhaps would conduce to clearness of thinking to realize that neither specific legislation affecting either marketing or rural finance nor direct attack on specific problems of marketing and rural credits by special investigators, even if the results of the studies were sound and convincing and received concrete application, can furnish a full solution of all the difficulties. It is not generally appreciated to what extent marketing troubles have their origin in irregularity of production or in lack of a stable and balanced agriculture; neither is it recognized that the difficulties which some expect to remove by rural credits legislation can be obviated only by improvement in conditions governing the conduct of farm operations, the trading in farm products, and the ownership and exchange of farm lands.

Irregularity in production in some instances arises from conditions over which there is no easy control. In years when a destructive disease prevails the yield from an acreage normally sufficient to supply consuming requirements is insufficient to meet the demand, and high prices follow. High prices also may result from reduced acreage, caused by low prices at planting time. High prices one year stimulate heavy planting the next. A solution for evils of this sort lies in stabilization of production. This can be brought about in part by the acquisition of fuller information as to the relation of acreage to consumption demands and to local marketing possibilities, the regional and local adaptation of crops and crop varieties, including the breeding and introduction of resistant varieties, and the control of crop pests.

In some sections, especially those which are new and developing, the difficulty is enhanced by the activities of real-estate promoters who succeed in directing farmers into localities, frequently remote from markets, where they successfully produce crops to the disposal of which they have given no consideration. In most instances disaster follows. Whether the States or the localities might not develop responsible agencies for the intelligent guidance of farmers in these directions is a matter for serious consideration.

One of the first questions that should be asked by a farmer who is considering a readjustment of his plans or who is undertaking tasks for the first time is whether the scale of his operations is such as to furnish full and economical employment to the farm family and to the work animals throughout the year. The minimum practical farm unit appears to be a farm of such size as will give adequate continuous occupation to the family. The unit for efficiency is somewhat larger than this. It has been found in one of our leading dairy sections that on farms of less than 100 acres the number of days' work for each individual employed is less than the full working capacity. In that locality a farm of this size gives full employment to two regular men, in addition to the extra help required at harvest time. Not only does the large farm utilize labor to better advantage, but it requires fewer animals to work a given area and is better supplied with labor-saving machinery. Farmers quite generally are beginning to recognize the fact that production is cheaper on large farms than on small ones and that the profits are greater for each unit of labor. There are thus forces at work to increase the magnitude of the farm business and statistics show that the agriculture of the country slowly is responding. Still, in the vicinity of large cities there is a tendency toward intensive farming, and on the Atlantic seaboard the acreage of improved land in the farm decreased from 69 acres in 1850 to 56 acres in 1910. In the cotton belt there has been a decrease since 1860 from 125 to 37 acres. This is due mainly to the breaking up of the large plantations. In the North Central States the proportion of land that can be devoted to intensive farming is relatively small, and in that section there has been an increase in the acreage of improved farms from 61 acres in 1850 to 113 in 1910.

As stated in the last annual report, there is much land in this country to be brought under cultivation; but this land in general is more difficult of access or more difficult to bring into use than that which is now cultivated. Future increase in production must come largely through better management of the land in cultivation. In a number of sections, however, there could be an extension of the land in use without much difficulty. This would result in greater economy and efficiency in the use of the labor of men and work animals. The Office of Farm Management has made a careful survey of a part of the Piedmont section of South Carolina. It finds that the size of the average farm there is 76 acres, while the area of land under cultivation in the farm is only 34 acres. It discovers that there are in this section 215 available workdays and that, partly because of the small size of the farm and partly because of the too exclusive reliance on one or two crops, there is a failure to utilize the available labor by approximately 50 per cent. Obviously, the direction of effort should be in the extension of activity over a larger farm area and of diversification.

Another vital question the farmer should ask himself is what he can do with his product when he secures it. Even if farms everywhere were of the requisite size for efficiency in production and reasonable diversification were practiced, the difficulties would not be solved. The farm unit which may be efficient for production still would have acutely to consider the problem of marketing. The farmer would not, through his own resources, be able to command easily the requisite transportation facilities or the daily information needed as to market conditions and the best near-by market, and in most cases would be at a disadvantage in bargaining with purchasers. The most promising solution seems to lie in the development of community cooperation or teamwork to determine what to produce, to employ the same methods, and to secure marketing information so as to enable producers to deal with buyers on an equal basis.

There are problems, however, which, under existing conditions, neither efficient individual nor community effort can solve. These can be reached only by legislation. There is much that individuals and groups of individuals may do in every community. In fact, they must always do the larger part. Self-help will be the rule in the future, as it has been in the past. Nevertheless, there are certain undesirable and unjust conditions which no amount of private effort, whether engaged in by farmers singly or jointly, can overcome. These conditions statutory enactments alone can correct. The better handling and storage of farm products, as well as trading on the basis of fixed grades and standards, wait upon proper legislation.

Among the difficulties of American farmers are lack of familiarity with, and remoteness from, the actual machinery of distribution and finance; absence of order or system in the conduct of their own business transactions; inadequacy of storage facilities for their products; and ignorance of what their products really are in the terms of market phraseology, as well as what they are worth. A producer of a manufactured article knows what it is and what it costs. He knows this better than the buyer. The reverse is true in agriculture. The farmer, as a rule, does not know what his product is or what he is selling, while the buyer knows what he is buying. The solution of these difficulties involves a better system of warehouses, with receipts which will be acceptable as collateral; the establishment of standards and grades of grain and cotton and other staple crops; the trading in the market upon standard types or grades, ascertained and fixed by the Government, with such supervision and control over the operation of exchanges as may be essential to secure justice for the producer, the consumer, and the intermediary.

For the accomplishment of these ends it seems desirable that the cotton-futures act, which has been in operation about a year, should be supplemented by a Federal permissive warehouse act, a cotton-standards act, a grain-grades act, and a land-mortgage banking act which shall inject business methods into the handling of farm finance and place upon the market in a responsible way reliable farm securities.

The Office of Markets and Rural Organization has definitely planned to keep in close touch with individuals and associations dealing with particular marketing problems over specific sections of the Union. Conferences with groups of producers interested in the same problems have been held and others will follow as occasion warrants, and it is believed that the establishment of advisory relations will have important results.

For a detailed account of the investigations and of the results of the activities of the Office of Markets and Rural Organization reference is made to its annual report. I shall touch upon only a few phases of the work.

MARKET NEWS SERVICE.

Shippers and distributors of perishable products long have felt the need of accurate information concerning the quantities arriving in the large markets. Reliable records of shipments have been wholly lacking ; and it has been practically impossible to obtain accurate and comprehensive reports of current wholesale and jobbing prices.

The feasibility of securing and disseminating information of this character through a public market news service was tested during the year. The results point to the conclusion that a larger and better supported service should be given a trial. Several methods of securing market reports were tried out and their limits of usefulness established. Special telegraphic connections were secured, and representatives of the department in important shipping areas and in the larger markets kept both producers and dealers supplied by telegraph with the latest news of crop movements and prices. The service was rendered in succession to the growers and shippers of strawberries, tomatoes, cantaloupes, and peaches, and to the shippers of northwestern pears. In several of the more important districts the information has resulted in a wider or more intelligent distribution, the avoidance of gluts in specific markets, fewer diversions of cars in transit, and a consequent shortening of time between the producer and the consumer.

THE COTTON-FUTURES ACT.

The United States cotton-futures act is the first general regulative statute passed by the Congress for the improvement of marketing conditions. It was enacted August 18, 1914, and became operative February 18, 1915. Sufficient time has elapsed to enable one to judge, in some measure, whether it is accomplishing the purposes intended.

The quotations of future contracts on cotton exchanges have a commanding influence upon the prices paid for spot cotton. Preceding the adoption of the law it was generally believed that these quotations were not true barometers of spot-cotton values, but usually were unwarrantably low and at times fluctuated unduly in response to manipulative influences. This condition was attributed largely to certain evil features which had crept into the practices on future exchanges as embodied in their contracts.

The act is a taxing statute, applicable to all contracts for the future delivery of cotton entered into on exchanges and like institutions. It aims to bring the future exchanges to a performance of their true economic functions by inducing them to adopt a form of contract free from evil elements.

Its motive is to eliminate unfair competition. It is in the interest alike of producers, merchants, spinners, and exchange members.

After the passage of the act, even before it became operative, the cotton-future exchanges in this country adopted the form of contract prescribed in its fifth section, and since, with negligible exceptions, they have traded exclusively under this form. Careful observation since the new form of contract came into use indicates that the statute has accomplished the chief economic objects anticipated by its framers. Future quotations now represent spot values more accurately; sharp and sudden fluctuations, such as commonly occurred under the old practices, have become much less frequent; and prices have been increasingly stabilized. The conclusion is unavoidable that these results are due mainly to the operation of the act.

Primarily these changes help the producer to secure more equitable prices. They also benefit the cotton manufacturer by giving him a truer index of the advance value of raw material. Likewise, they afford to all concerned in financing the crop and moving it to market a safer and more practicable hedge. In addition, the exchanges themselves have been somewhat relieved from the suspicion, which formerly justly attached in considerable measure, that exchange transactions were not always fairly conducted.

COTTON STANDARDS.—One of the important sections of the act is that dealing with standards. It authorizes the department to promulgate standards of cotton by which its quality or value may be determined, to be known as the "Official cotton standards of the United States." Acting under this authority, the department prepared a set of standards for white cotton, consisting of nine grades, as follows: Middling Fair, Strict Good Middling, Good Middling, Strict Middling, Middling, Strict Low Middling, Low Middling, Strict Good

Ordinary, and Good Ordinary. Pains were taken to make them comprehensive, and they are more truly representative of American cotton than any standards hitherto in use. They were promulgated December 15, 1914, and replaced the permissive standards adopted by the department in 1909. To the close of November 10, 1915, 529 full and 19 fractional sets had been distributed to exchanges, spot-cotton dealers, merchants, cotton mills, agricultural colleges, and textile schools in the United States; in addition, 16 full sets and 1 fractional set had been shipped to foreign countries.

While the compulsory use of the official standards extends only to contracts made subject to section 5, their acceptance and use have not been limited to the future exchanges. They have been voluntarily accepted in all the more important spot markets and form the basis of their dealings. The standards have given general satisfaction and the tendency toward acceptance of them has not been confined to this country. Committees and the board of managers of the Liverpool Cotton Association have approved them, though they have not been adopted by the association itself. The question of using both the official standards and the form of contract prescribed by the act is under consideration by the exchange at Bremen, and there have been negotiations on the subject with the exchange at Havre and a proposed exchange in Rotterdam.

It has not been possible, largely because of the lack of suitable type material, to establish standards for tinged and stained cotton. However, for convenience in passing on disputes, and in order to facilitate the work of classification of cotton proposed for tender on contract on the exchanges, the department has prepared tentative types for Low Middling yellow tinged, Low Middling blue tinged, and Middling yellow stained cotton. Duplicates of these have been distributed to the various exchanges for use pending the promulgation of the official standards.

Determination of disputes.—As an incident to the settlement of contracts made in the form prescribed by section 5 of the act, and as a means of bringing about uniformity in methods of grading and classification, the act imposed upon the department the duty of determining disputes involving grade, length of staple, and quality of cotton offered for delivery referred to it by the parties to such contracts. To the close of November 10, 1915, 1,002 disputes, involving 65,654 bales of cotton, had been submitted for determination. The costs of the 988 disputes decided amounted to $22,773.75. These were paid by the parties.

Spot markets.—The statute requires the department to designate the bona fide spot markets. It prescribes also that the averages of spot values in such of these as may be selected for the purpose shall, in the settlement of contracts made in compliance with the act, be the basis for determining actual commercial differences in the values of grades in future markets which are not themselves spot markets. Of the spot markets accepting the official standards, 13 have been designated as bona fide spot markets. Of these, 11 were selected for use in determining differences in values between grades of cotton delivered on contracts made on the exchanges subject to the act in places which are not spot markets. The latter furnish the department by wire daily quotations based on sales of cotton according to the official standards.

It is gratifying to note that a large majority of the people affected by the act, after having had an opportunity to observe its workings for the past eight months, are in sympathy with its general purposes and indorse what has been accomplished.

WAREHOUSE LEGISLATION.

Investigations conducted by the Office of Markets and Rural Organization indicate that there is serious need of warehouse legislation. It would seem that the most desirable action on the part of the States would be the passage of laws which would guarantee the integrity of warehouse receipts. These laws should be uniform, so that the conditions governing such receipts may be the same throughout the country, thereby greatly increasing their availability as collateral for loans at distant banking centers. The uniform warehouse receipts act is now in force in 31 States.

In addition to the legislation that has been or may be enacted by the States, it is believed that the enactment of a Federal warehouse law would be of great benefit. The general interest in the subject is well shown by the inquiries the department constantly is receiving. In fact, many warehousemen, under the misapprehension that a bill on the subject considered by the last Congress actually had been passed, have asked the department to give them information as to how to comply with it. The proposed measure, which is permissive in character, would enable the Department of Agriculture to license bonded warehouses in the various States. It would promote the better storing of farm products, increase the desirability of receipts as collateral for loans, and therefore would be of definite assistance in financing crops. A Federal statute on the subject also would promote the standardizing of storages, of warehouse receipts, and of marketing processes.

RURAL CREDITS.

The department has continued its studies of rural financial conditions in this country. It has investigated the relations of banks, life insurance, and mortgage companies to farm-mortgage credit and those of banks and merchants to the financing of farm operations. It has examined the recent legislation relating to personal-credit unions, extended its investigations of interest rates and other charges on farm mortgages and personal and collateral loans, and studied the possible forms of organization for personal-credit associations. It has issued bulletins bearing on the subject and has responded to many requests for information and assistance from individuals, groups of individuals, and State authorities.

The duty of preparing and reporting to the Congress on or before January 1, 1916, a bill or bills providing for the establishment of a system of rural credits adapted to American needs and conditions has been imposed upon a joint committee of the House and Senate. It is expected that as a result of the deliberations of this committee legislation will be proposed which will furnish a practical solution of the problem from the financial viewpoint.

It is generally recognized that the rural-credit problem is not a simple one. It is essentially complex. There is no single solution of it. Specific financial legislation on the part of the Federal Government, or of the State, or of both, will not furnish a full solution. It seems clear that there should be a Federal law providing for a land-mortgage banking system. It is a question whether by Federal action existing banking arrangements may not be so modified as to bring them into closer contact with rural communities and with individual farmers, giving farm collateral more readily and fully the advantages of the rediscount feature of the Federal Reserve Act. It also seems clear that legislation on the part of States permitting and encouraging the creation of personal-credit unions and removing any obstacles that may exist to the easier and more orderly handling of farm finance should be enacted. Reenforcing such agencies there would be at work all the great forces of the Department of Agriculture, of the land-grant colleges, and of the State agricultural departments. Their activities all contribute to make agriculture more profitable, to improve distribution, to eliminate waste, and to inject business methods into farming. In proportion as they accomplish these tasks they tend to solve fundamentally the whole problem of rural credits. Further Federal legislation vitally important to a more efficient agriculture, such as a cotton-standards act, a grain-grades bill, a permissive warehouse law, and proposals for the improvement of marketing conditions, also will contribute directly to its solution.

But even if all the desirable legislation were enacted and were put into operation there still would be a vast amount of constructive work to be done by individuals and groups of individuals, including the farmer, the business man, and the banker. If these assume a helpful and constructive attitude, they will furnish indispensable support for practical reforms. All these forces working in combination can effect marked changes in conditions, especially of the very class of farmers whose state most critically excites interest and concern.

FUR-BEARING ANIMALS IN ALASKA.

Under the Alaska game law of May 11, 1908 (35 Stat., 102), regulation of the killing of certain terrestrial animals and of sea lions and walruses is committed to the Department of Agriculture. For several years the Congress has made appropriations to enable the department to make investigations and experiments in connection with rearing fur-bearing animals, including minks and martens. The fisheries of Alaska are under the direction of the Department of Commerce, which also administers the laws relating to fur seals and those governing the killing of minks, martens, sables, and other terrestrial fur-bearing animals in Alaska.

Early in 1915 a joint committee of the Departments of Commerce and Agriculture was appointed to devise a plan to simplify the administration of the Aleutian Islands Reservation in Alaska in respect to the propagation and protection of fur-bearing animals. The committee concluded that the problem was a broader one and reported that the present distribution of authority over fur-bearing animals between the two departments is unwise. It recommended that jurisdiction over land fur-bearing animals be committed to the Department of Agriculture and that over aquatic fur-bearing animals to the Department of Commerce. This action would adjust the powers of each department to its present functions and special equipment. It would place under the Department of Commerce not only fur seals and sea otters, as at present, but also walruses and sea lions which are now under the supervision of the Department of Agriculture; and under the latter department, land fur-bearing animals, including minks, martens, and sables, which are now under the jurisdiction of the Department of Commerce. The committee's report was approved by the Secretary of Commerce. This department also approves it and is of the opinion that the recommendations should be embodied in law at the ensuing session of the Congress.

THE ALASKA GAME LAW.

The Governor of Alaska from time to time has recommended amendments to the Alaska game law. Some of the objects desired could be, and have been, accomplished by regulations prescribed by the department under existing law; others require action by the Congress. The department concurs in the following suggestions made by the governor and recommends legislation to give them effect: (1) That protection be withdrawn from brown bears. These are a menace to the sheep and cattle industries in Alaska and are so abundant as not to need further protection. (2) That the exportation of walrus ivory be wholly prohibited. This is essential to the preservation of the walrus, which forms an important source of food and clothing for the natives. The present restrictions upon the killing of this animal have proved inadequate to conserve it. (3) That nonresidents be required to obtain licenses to hunt deer and goats, as in the case of other big game. This is necessary for the proper supervision of hunting in the Territory. (4) That residents of Alaska be permitted to obtain two $10 and two $5 shipping licenses in each year. It is a useless hardship to restrict them to one of each of these licenses when under the law they may have more than one head or trophy of the animals they wish to ship. There may be ambiguity in the law. If so, it should be removed. (5) That residents of Alaska who wish to have specimens of big game mounted be permitted, without charge, to send them to the States to be mounted and returned. (6) That game wardens be authorized to procure warrants for the search of premises where game killed in violation of law may be secreted.

TOBACCO STATISTICS.

During the year the present methods employed by the Departments of the Treasury, of Commerce, and of Agriculture in collecting tobacco statistics were considered by an interdepartmental committee. Its task was to devise a plan to eliminate duplication of work and unnecessary expense and to make the statistics more complete and more easily available to the public. The committee submitted three recommendations, which have been approved by the departments concerned. The first two require congressional action.

(1) That the act of April 30, 1912 (37 Stat., 106), authorizing the Bureau of the Census to collect tobacco statistics, be repealed, and that hereafter that bureau gather only such facts about tobacco as are incidental to the decennial census of agriculture and the quinquennial census of manufactures.

(2) That authority be given to the Bureau of Internal Revenue to extend the statistics collected by it to include the principal types of tobacco held by dealers at the end of each quarter, and by manufacturers at the end of the year, and to publish this information as quickly as possible.

(3) That an annual report be prepared by the Bureau of Crop Estimates, which shall contain in elaborate form all the statistical information concerning tobacco collected by the Federal Government. The Department of Agriculture is authorized by existing law to publish reports relating to tobacco.

The proposed action would result in economy and efficiency in the collection of tobacco statistics. A single report assembling all information collected by the Government relative to the tobacco crop would be of greater value than are the present separate fragmentary reports.

THE STATES RELATIONS SERVICE.

Under the plan of reorganization of the department, approved by the Congress at its last session, the States Relations Service has been created. It has general charge of the department's business with the State agricultural colleges and experiment stations and also of certain related functions. It administers the Federal laws relating to the experimental and extension activities of the State institutions and coordinates them with the work of the department.

THE AGRICULTURAL EXTENSION ACT.

The cooperative extension act of May 8, 1914, provides for a nation-wide system of instruction for the farming population in agriculture and home economics outside of the schools and colleges. It establishes a close copartnership between the Federal and State agencies in the organization and administration of the extension service. The department is under obligation not only to contribute to the formulation of plans of work which are to be mutually agreed upon, but also to assist the colleges in executing them in the most efficient manner. The law contemplates a unified extension organization in each State which will represent and be responsible to both the college and the department.

THE FIRST YEAR'S OPERATION.—During the year much has been accomplished toward creating and perfecting the administrative machinery. All the States have assented to the provisions of the act. One college in each has been designated to receive and to administer the funds. In several States where the land-grant institution is not coeducational an arrangement for the conduct of the work in home economics has been made with a college for women. In a few States having separate land-grant colleges for negroes a similar plan for extension work among people of that race has been adopted.

The institutions have created separate divisions or services and have brought under them all extension work in agriculture and home economics. Some of these divisions are not yet as clear-cut as they should be. In some cases laws or general administrative regulations adopted years ago have continued a confusing union of the extension organization with the experiment station. In 36 States a separate officer is in charge of the work, usually with the title of director; in 9 this officer also is head of the experiment station or of the college of agriculture.

The general lines of the extension system for the whole country have been well marked out. They embrace (1) the county agricultural agents, (2) the boys' and girls' clubs, (3) the movable schools, and (4) the supporting work of the college and department specialists.

THE COUNTY AGENT.—The colleges have accepted one of the fundamental features of the system developed by the department prior to the passage of the extension act. The experience of the last 12 years has demonstrated fully the value of the county agent as a means of bringing to the people on their farms and in their homes the results of practical experience and scientific research. There is general agreement that nothing is more important than the establishment in each county of permanent headquarters, in charge of a competent agent, who shall serve as the joint representative of the local community, the agricultural college, and the department. Through this arrangement the needs of the several communities can best be determined and the help of the State and the Nation most speedily and effectively rendered. A large part of the extension funds derived from all sources, Federal, State, and local, have been devoted to the maintenance and development of the county-agent system. There are now more than 1,000 counties which have men as agents, of whom 680 are in 15 Southern States, where there are also 355 women employed. On the whole, these agents have been very successful in securing the support and confidence of the people; and the tangible results of their work are encouraging. The personality of an agent is a large factor in determining his success. Understanding of the real problems of the region, sympathy with the people, ability to meet them on their own ground and to convey practical instruction in a convincing way, studious inclinations and habits, and business ability of a high order are essential.

COUNTY ORGANIZATIONS.—As the agent can not deal altogether with individual farmers, the problem of the organization of groups of farm people through which he may work is assuming great importance. Two general types exist. County associations, often called farm bureaus, have been formed. These are expected to take the initiative in securing local financial support for the agent, to join in his selection and appointment, and to stand behind him in his efforts to advance agricultural interests. Many of them include business and professional men as well as farmers. Their complex form has given rise to special problems. It is very apparent that, while the cordial sympathy and support of all classes are very desirable, the farmers themselves should control and in the end determine the character and functions of the organizations. Another type is the small community club. When a considerable number of these clubs exist in a county they have been confederated to form a county organization. The exact relations of both types to the extension system have not been fully defined, and they still must be considered as in the experimental stage.

WORK OF COUNTY AGENTS.—The work of the county agents is highly varied. In the 15 Southern States during the year direct demonstrations were made on 105,000 farms and instruction was given to 60,000 boys and 50,000 girls. Approximately 500,000 visits were made. The demonstrations covered practically every phase of southern agriculture. Nearly 3,000 silos were built under the direct instruction of the agents, and 13,000 pure-bred animals were purchased for breeding purposes. Under the direction of specialists, the agents assisted in hog-cholera control by organizing farmers and instructing them as to the administration of serum. In demonstrating the method, they inoculated 118,000 hogs. They also assisted in organizing communities for the prevention of other animal diseases and vaccinated 26,000 head of stock to show how such maladies as blackleg and anthrax might be combated. They aided department employees in tick eradication and were instrumental in securing the construction of 2,000 dipping vats. Many creameries and cream routes were established, and instruction was given in the feeding of dairy cattle and the marketing of milk.

More than 75,000 hillsides were terraced to prevent erosion. On thousands of farms the stumps were removed to permit better cultivation. Approximately 65,000 acres were drained. Nearly 3,000 demonstration home gardens were planted, and farmers were induced to purchase 132,000 improved implements. About 500 communities were organized and engaged cooperatively in some special work, such as breeding of live stock, purchasing and selling, handling of seed, and marketing of crops, and the improvement of farm practices. Many of these not only handled financial matters but also interested themselves in the social, educational, and rural betterment of the neighborhood.

The women county agents inaugurated work for women. Home conveniences, eradication of flies and mosquitoes, proper preparation of food, care of poultry, and marketing of eggs received attention. Approximately 50,000 homes were visited and given helpful suggestions, while 6,000 farm women made special demonstrations in home improvement.

In the Northern and Western States, where the work is comparatively new, the number of agents increased during the year from 219 to 350. These agents were instrumental in forming 875 local organizations, including farmers' clubs and associations for improvement of crop production, breeding of live stock, cow testing, and purchasing and marketing. They conducted 35,000 demonstrations with crops and live stock. They visited 76,000 farms, addressed meetings attended by 1,200,000 people, and assisted in developing agricultural instruction in 4,600 schools. About 72,000 farmers and their families attended short courses or movable schools. On the advice of agents 600,000 acres of tested corn, 280,000 acres of oats, 17,000 acres of potatoes, and 85,000 acres of alfalfa were planted. Approximately 2,000 registered sires were secured for farmers; 300,000 hogs were vaccinated for cholera; 2,000 farmers were instructed in the mixing of fertilizers, and 11,500 conducted demonstrations in the use of lime; more than 2,000 were assisted in keeping farm accounts, and, through exchanges organized by the agents, 2,300 were supplied with labor.

Boys' and girls' clubs.—Another important activity developed by the department and the agricultural colleges prior to the passage of the extension act and continued under the new machinery is the boys' and girls' club work. In the Southern States this undertaking is associated with the county-agent system; in the other States it is conducted independently. Through it the extension agencies are brought into close touch with the State and local school officers and teachers, who cooperate in the formation and management of the clubs.

In the Southern States 110,000 boys and girls were enrolled during the year. Among their activities the following are of special interest: Of the 60,000 boys many were interested in growing winter legumes for soil improvement. Four-crop clubs were formed in some of the States, with rotation on 3 acres of ground, to show the financial advantage of improving soil fertility. Many of the boys were organized into clubs to raise pigs and poultry. Fifty thousand girls were enrolled in the canning clubs. They were taught to make home gardens and to preserve for home use the garden products as well as the waste fruits and vegetables of the entire farm.

In the Northern and Western States the enrollment of boys and girls was more than 150,000. The leading club projects were the growing of corn and potatoes and garden and canning work. Through these clubs work in crop rotation, soil building, and the proper distribution of labor and enterprises throughout the year was undertaken by the boys and girls. Many members are working out three and four year rotations of crops and are spending their net profits in the purchase of pure-bred stock, hogs, poultry, sheep, and labor-saving machinery for both farm and kitchen. Numbers of them are buying land, thus early acquiring the habit of thrift and the sense of the dignity of land ownership. At 938 public demonstrations in the home canning of fruits and vegetables 118,000 persons were in attendance, including more than 50,000 women and 10,000 men. Of the 1,557 club members who attended the midwinter short courses at the colleges of agriculture, 968 had their expenses paid by the local people, institutions, or organizations as a recognition of their achievements.

Extension specialists.—The agricultural colleges for many years have done a large amount of extension work through the members of their faculties and the experiment-station staffs. At first this was purely incidental; but as extension activities have grown a more definite share of the time of specialists has been devoted to the work. More recently in some institutions certain officers have been assigned wholly to this service. These officers are expected to supplement the field work of the county agents, to furnish them advice and assistance, to give short practical courses of instruction, to conduct demonstrations along special lines, to prepare publications, to address meetings of farmers, and to answer inquiries. In general, it is their duty to gather up the available information in their several specialties, and particularly that of the State experiment stations, to put it into effective form, and to furnish it to farmers directly or through the county agents.

Specialists also are sent out by the department to work with the extension agents. Among these, for example, are specialists in dairying, animal husbandry, the use of hog-cholera serum, tick eradication, marketing of agricultural products, farm management, and the home canning of vegetables and fruits.

Funds for extension work.—For the current fiscal year the department funds available for this purpose aggregate $1,200,000. Under the extension act $1,080,000 is allotted to the States. The total Federal contribution thus amounts to $2,280,000. This is met by approximately $2,653,000 from the States. The latter includes $600,000 to offset the equivalent allotment of extension-act funds, $499,000 from additional State appropriations, $333,000 from college funds, $944,000 from counties, and $277,000 from local organizations and miscellaneous agencies. The total from both Federal and State sources is, in round numbers, $4,933,000. Of this sum about one-half will be expended in the demonstration and other activities of the county agents. Much of the work done by these agents bears directly on farm-home problems, but $550,000 has been allotted for distinctive instruction in home economics. Nearly $300,000 has been allotted specifically for activities among boys and girls, and yet this sum does not represent the total which will be used in extension work among young people. Approximately $1,000,000 will be devoted to the tasks of the specialists.

This general review of the national cooperative extension system shows that under the stimulus of the Federal act forces previously in operation have been strengthened and that altogether the movement for the practical education of the rural people has been broadened.

DIRECT EXTENSION FUNDS.—The appropriations made directly to the Department of Agriculture very largely are expended in developing the county-agent system. Contributions to the salaries of the agents are made on a plan which encourages local support. The system is well established in about one-third of the counties. This result has been attained mainly because the department has supported actively the movement during the period when the people were not fully persuaded of its value. Two-thirds of the counties have not yet placed the system on a permanent footing, and need the stimulating influence of the department and of the State college. The work in home economics as yet is in its inception. It is highly desirable, therefore, that the department have direct appropriations available for extension work. As Federal and State funds become sufficient to maintain all the agents, it may be desirable for the department to decrease gradually its contributions and to expend its appropriations more largely for the support of administrative officers and specialists who shall supervise the work of the agents, supplement their activities by special demonstrations, and give expert advice and assistance.

THE NATIONAL FORESTS.

Nearly 25 years have passed since the first public timber reservation was made and 10 since the National Forests were put under the Department of Agriculture. Sufficient time has elapsed to determine whether their creation was wise.

The principal purpose in establishing the Forests was to secure sound economic and industrial development. Experience had shown that private ownership of large areas of timberland in most instances involved a sacrifice of public interests. Many private investments in forest lands are made for the mature timber and not for the purpose of growing new tree crops. The long time required to raise a merchantable product, the risk of loss from fire and other destructive agencies, the fear of burdensome taxes, and the uncertainty of market conditions usually make the holding of cut-over lands unattractive to capital. Hence the peculiarly public character of the problem of forestry.

Fire protection.—Before the National Forests were created practically no effort was made to protect the timber on public lands from destruction by fire, notwithstanding the fact that the situation was peculiarly hazardous. During the last decade a fire protective system has been developed. Extensive improvements have been made, including more than 25,000 miles of roads, trails, and fire lines, 20,000 miles of telephone lines, many lookout stations, and headquarters for the protective force. In the year 1914, when conditions were exceptionally unfavorable, nearly 7,000 fires were fought successfully. They threatened bodies of timber valued at nearly $100,000,000, but the actual damage was less than $500,000. This work not only is saving public property; it is conserving the material for local economic development and for permanent industry. Furthermore, the results of the Federal system have induced many States to take up the work, and active cooperation between the two agencies has followed.

Use of timber.—The service rendered by the National Forests is not confined to protection from fire. The resources are being utilized to build up the country. They furnish the timber required by settlers, communities, and industries within and near their borders. This is obtained without charge by settlers, prospectors, and other local residents for personal use; at cost by settlers and farmers generally for domestic purposes; and at market value by individuals or corporations desiring to purchase it. During the last 11 years the number of permits for free timber to settlers has been multiplied 13 times and the number of sales 27 times. The amount cut annually by settlers under these permits is more than four times what it was in 1905, while that under commercial sales has increased eightfold. In the three years since sales at cost to settlers and farmers were authorized by the Congress their annual volume has increased enormously. Nearly 51,000 lots were disposed of during the last year. Probably not less than 45,000 persons or corporations obtained timber directly from the National Forests.

More than half of the timber now cut annually is used in the vicinity of the Forests. This includes all that taken free and under sales at cost, and approximately 45 per cent of the commercial cut. Hundreds of mining districts throughout the West, from small projects requiring an occasional wagonload of props or lagging to the great copper district of central Montana, which consumes about 380,000 pieces of mining timber annually, are supplied. Railroads also are furnished a large part of the ties and other material required for their lines in the Rocky Mountain regions. A million and a half ties now are cut from the Forests yearly. Throughout the West timber is taken from them for near-by towns, irrigation projects, hydroelectric power plants, and the like, while thousands of individual settlers obtain it for fuel and farm improvements. On the Alaskan coast the salmon packers, towns, and settlers use 40,000,000 feet a year from the Chugach and Tongass Forests.

The National Forests also meet the demands of the general lumber market. More than 300,000,000 feet are cut annually for the nation-wide trade. Since 1908 there have been taken from them 5,000,000,000 board feet of wood and timber products.

Not only is timber amply supplied and are future resources safeguarded, but the ultimate damage to the West through impairment of its water resources, vitally important for irrigation and other purposes, also is prevented. The damage would have been of a kind to force at a huge cost the undertaking of protective works against erosion, torrent formation, and floods. Other countries have been compelled to do this. At the time the National Forest policy was entered upon the agencies making for destruction were actively at work. A range overgrazed and forest fires which burned unchecked were diminishing the water-storage value of the mountains and accelerating soil destruction and removal. The evils averted and the benefits secured through only a decade of protection and regulated use constitute a gain of great moment.

Grazing.—Although the National Forests were established primarily to conserve the timber and to protect the watersheds, it has been the consistent aim of the department to develop all other resources. Grazing, mining, agriculture, water power, and recreation all are fostered. One of the most important of these is grazing. The greater part of the summer range in the Western States is in the Forests. Under the regulated system the forage is utilized fully, without injury to the tree growth and with adequate safeguards against watershed damage. There were grazed last year under pay permits 1,724,000 cattle and horses and 7,300,000 sheep and goats. Several hundred thousand head of milch and work animals were grazed free of charge, and more than 3,500,000 head of stock crossed the Forests, feeding en route, also free of charge. Not including settlers who have the free privilege or persons who have only crossing permits; there are 31,000 individuals who have regular permits. During the year ended June 30, 1905, there were only 692,000 cattle and horses and 1,514,000 sheep and goats on 85,627,472 acres. The number of animals now sustained in proportion to the area of the Forests is 50 per cent greater than it was 10 years ago. Since 1905 the number of persons holding grazing privileges has increased nearly 200 per cent. This is due in part to the enlarged area of the Forests, but can be attributed principally to wider use by settlers and small stockmen. When the regulated system was established the Forest ranges, like the open public lands to-day, rapidly were being impaired. The productivity of the land for forage in most places has been restored and everywhere is increasing; the industry has been made more stable; stock comes from the Forests in better condition; range wars have stopped; ranch property has increased in value; and a larger area has been made available through range improvements. It is probable that 100,000,000 pounds of beef and mutton are sold each year from herds and flocks occupying the ranges. That the Forests have promoted the development of the stock industry is indicated. This is appreciated by stockmen, and they are urging that a similar system of range regulation be extended to the unreserved public lands. But it is not merely the stock industry that has been benefited. The grazing privilege has been so distributed as to promote healthy community growth, increase settlement, prevent monopoly, and diffuse prosperity. In other words, public control has served social as well as economic ends.

WATER POWER.—The National Forests contain approximately one-half of the water power of the West. The department for nearly a decade has been issuing permits for its development. Unfortunately, the present law does not authorize the granting of permits for fixed periods. It should be amended, and recommendations to this end have been made repeatedly by the department. While authority to grant term permits undoubtedly would aid water-power utilization, the fact remains that development, practically to the extent of the market, actually is now taking place on the Forests. In the Western States power development has advanced proportionately very much more rapidly than in the East, where land is privately owned. The amount of water power used in the generation of electricity by public utilities corporations, street railway companies, and municipalities has in the last decade increased 440 per cent in the West, or more than twice as fast as in the remainder of the country. There, in proportion to population, four and one-half times as much water power is used as in the remainder of the United States, and nearly three times as much as in the Eastern States.

Of the existing 1,800,000 water horsepower in the Western States, 50 per cent is in plants constructed in whole or in part on the Forests and operated under permit from the department. Plants under construction will develop about 200,000 additional horsepower, while over 1,000,000 more is under permit for future construction. The chief obstacle to further immediate water-power expansion is the lack of market, for plants in operation in the West now have a surplus of power of which they can not dispose.

MINING DEVELOPMENT.—The National Forests are open to prospecting and the initiation of mineral locations just as is the open public domain. When a mineral claim comes up for patent it is examined on the ground to discover whether the terms of the mining laws have been complied with. This examination is designed to prevent fraud, and no one with a valid claim need fear it.

The existence of the Forests gives certain advantages to the miner. It is not on the great private timber tracts in the western mountains that the miner is prospecting. It is only on the Forests and other public lands open to mineral locations, if he makes a discovery, that he can get title merely through conscientious compliance with the mining laws. Many mines to-day are securing their timber from the Forests, and because of its protection and continued production a steady supply at reasonable rates is assured.

Recreational uses.—The National Forests are used also for health and recreation. They embrace the high, rugged mountains of the West, the scenery of which is unsurpassed. These great areas are open to the whole Nation. Already more than one and one-half million people visit them annually for recreation, and this number is increasing rapidly as roads and trails are built, making new points accessible. The lands bordering on the hundreds of lakes and streams in the Forests offer attractive sites for camps and for permanent summer residences. Authority now exists to grant term leases for the erection of summer homes, hotels, and similar buildings, and large numbers will take advantage of this privilege. Public ownership has protected the natural beauty of these areas. Their recreational value has been maintained and increased through road and trail construction and through intelligent study of the needs of the public.

Importance to agriculture.—To the agricultural interests of the West the proper handling of the Forests is of great importance. The Forests conserve and increase the supply of water. Fire protection gives property an added value, as do roads, trails, and other Government improvements. In fact, the existence of the Forests gives a permanence to agriculture that does not exist where the timberlands are privately owned.

What has happened in the older lumber regions of the country is well known. The scattered agricultural areas were occupied as long as the timber lasted and lumbering operations furnished markets, kept up roads, and gave employment when the farm could be left. But with the exhaustion of the timber, the devastation of the lands by fire, the abandonment of the logging roads, and the moving of the industry to some new region, the farms, too, were abandoned and whole townships depopulated.

Agricultural settlement.—It is the department's policy to make available for settlement all lands which are chiefly valuable for farming. In order to open such areas a careful classification is being made. Large tracts found to be valuable for agriculture or unsuited for permanent Forest purposes are eliminated. During the last five years about 14,000,000 acres have been released. In addition, individual tracts are classified and opened to entry upon application of home seekers. Since the work was begun more than 1,900,000 acres have been made available for the benefit of 18,000 settlers.

In short, lands within the Forests really adapted to agriculture are being occupied as homesteads under favorable conditions. While the lands suited to settlement are classified and opened to entry, those which are not chiefly valuable for agriculture are retained in public ownership. The alienation of timberlands under conditions that will lead not to settlement but to speculation and to increasing the holdings of private timber owners would defeat the very purposes for which the Forests were established.

The real agricultural problem within and near the Forests is to make possible the successful occupancy and development of the lands that already have been opened to entry or actually patented. The mere private ownership of land does not insure successful use of it. In Oregon and Washington alone there are about 3,000,000 acres of logged-off land, much of it agricultural in character, now lying idle. In this condition speculative holding of the land for higher prices plays a large part. Another cause is the lack of transportation facilities. A settler may clear land and raise crops upon it, but he is helpless if he can not market them. There are great areas of fertile land unused to-day on this account. In many sections near the National Forests pioneer conditions still exist. The population is small and the task of road building is beyond the means of the residents. There is little or no demand for timber and the receipts from the Forests which go to the community are small. The fact that the public property is not subject to taxation makes such communities feel, and very justly, that the Forests are not contributing enough to local development.

This situation should be changed. Assistance should be given in the building of roads to bring into productive use the resources of such regions. Therefore the suggestion contained in the last annual report is repeated, that upon a showing of public necessity appropriations be made for specific roads and similar improvements, to be charged against the State's future share of receipts from the Forests. Such action would promote the local development of agriculture and other resources.

To secure the maximum use of the lands still remaining in Federal ownership further legislation is needed. There must be a constructive program which will promote development and safeguard public interests. The aim should be to make these properties more useful, available to greater numbers, and effectively instrumental in building up industries.

Eastern forests.—The wisdom of retaining the western forests under national control is indicated by the course which the Federal Government has found necessary in dealing with the mountain lands of the East. These lands passed into private hands directly from the States. Their present condition furnishes an example of what happens when mountain lands are controlled by individuals. The results became apparent years ago. Erosion, loss of the soil, and clogging of streams with silt and stone followed the removal of the timber. Stream flow became more irregular, and great losses resulted to property through increased floods.

So serious was the situation that it was brought to the attention of the Federal Government as early as 1900. Various methods of handling the problem were proposed and discussed, but it became apparent that the Government must purchase and control the more strategic areas. With this end in view the act of March 1, 1911, established a National Forest Reservation Commission and authorized it and the Department of Agriculture to proceed with the acquisition of lands at the headwaters of the navigable streams. It was necessary in the East to acquire by purchase the same class of lands which in the West were put into National Forests merely by proclamation. An appropriation of $11,000,000 was made for these purchases, to be expended during the fiscal years 1910 to 1915. It has not been practicable to use the entire sum; a portion lapsed before contracts of purchase could be completed. The commission has approved the purchase of lands in 16 localities of the southern Appalachian and White Mountains, involving a total area of 1,317,551 acres. This has been acquired or bargained for at an average price of $5.22 per acre.

The funds made available under the first appropriation are nearly exhausted. In its report to the Congress for the fiscal year 1914 the commission recommended that purchases be continued until about 6,000,000 acres shall have been obtained and that the Congress authorize appropriations through another five-year period at the rate of $2,000,000 a year.

As fast as the eastern lands are acquired they are placed under an administration similar to that of the western forests. Already on these lands, of which 348,275 acres had been paid for on June 30, 1915, headway has been made in overcoming fires and in starting the forests toward increased productiveness. Situated for the most part near densely populated communities, the resources of these lands are readily available. There is immediate need for their timber, mineral, water, and forage resources and also for their development as recreation grounds. Purchases should continue until areas sufficient to be influential in protecting the region are acquired.

Alaska forests.—Two of the 155 National Forests are in Alaska. The Tongass comprises approximately 15,000,000 acres in southeastern Alaska, while the Chugach, covering the timbered area about Prince William Sound and thence westward to Cook Inlet, contains about 5,500,000 acres. Most of the timber on them is of the coast type, Sitka spruce, hemlock, and cedar being the predominant species. On the Tongass single spruce trees not uncommonly reach a diameter of 6 feet, a height of 200 feet, and a yield in merchantable material of 20,000 board feet. Limited areas carry 100,000 board feet to the acre, and 40,000 to 50,000 feet over considerable areas is common. The timber is accessible, of excellent quality, comparatively easy to log, and close to water transportation. The presence of available water power will facilitate the development of wood-using industries. While the Chugach Forest has less favorable conditions for timber growth and a less heavy stand than the Tongass, nevertheless in it there is a large amount of merchantable Sitka spruce and hemlock, which will have an increasing importance for railroad construction, mining, and other industrial purposes. Large areas have an average stand of 15,000 to 20,000 board feet to the acre; and the best run as high as 50,000 feet. The volume of timber on the two Forests is estimated to be between sixty and eighty billion board feet, about one-eighth of the total estimated quantity on all the forests.

In accordance with the general principle of organization adopted for all the forests, but to a greater degree than elsewhere because of their remoteness, the administration of the Alaska forests is decentralized to permit the prompt transaction of business and ready response to the needs of the public. Aside from matters pertaining to the alienation of land about 98 per cent of the business of the two Alaskan forests is handled by the local force.

Approximately 40,000,000 feet of timber are cut annually under sales. Settlers secure free, without permits, the timber needed for personal use. Mining locations are made as on the public domain. Agricultural land is classified and placed at the disposal of settlers. Every encouragement is given to the use of lands for miscellaneous purposes. In some places there is an increasing use of land for canneries, stores, and other enterprises. As a rule these localities are not yet in a position to incorporate as towns and to take advantage of the town-site laws. It would be a public benefit if authority were granted to permit the sale of such lands after examination and classification by the department. Definite provision, however, should be made against alienation of those which are chiefly valuable for water-power sites or are needed for handling the timber resources or for other public purposes.

The Alaska National Forests are designed to serve the same broad public purposes as the forests in the States. It is the aim to administer them in a spirit of service to the people who are struggling to build up communities and homes and to establish industries. They should be preserved and should continue to be administered in connection with the other forests of the Nation.

I have been compelled in this, as in previous annual reports, to confine myself to certain topics. It would be impossible within reasonable limits to review much of the important work of the different bureaus. Only by careful study of the separate reports of the chiefs can one form any satisfactory idea of the extent, variety, and nature of the problems which the department is attacking.

Respectfully,

D. F. Houston,
Secretary of Agriculture.

The President.

THE COOPERATIVE PURCHASE OF FARM SUPPLIES.

By C. E. Bassett,

Specialist in Cooperative Organization, Office of Markets and Rural Organization.

A CAREFUL examination of the methods of a large manufacturing establishment shows that the success is due largely to the ability to buy its raw material at the lowest prices, to sell its finished products through an efficient distributing system, and to take advantage of more economical methods of production. By means of a thorough organization of all its forces it overcomes much waste, inefficiency, and extravagance, and every branch of its work is a part in one great system. The small factory buys its materials in small quantities for cash, or credit extended on high rates of interest, or from brokers or small dealers, but the large factory arranges for a line of credit at low rates and maintains a purchasing department, which buys so carefully in such large quantities as to secure close prices from producers. The quantity of these materials purchased justifies the expense of a testing department to make sure that all purchases are up to the standard.

The average individual farmer is himself a small manufacturer, working with the forces of nature to produce certain farm products. There are two distinct ways by which he may hope to improve his financial condition—first, by lowering his cost of production, and, second, by increasing the income received from the sale of his products.

It has been found from the surveys made by the Office of Farm Management that the minimum efficient unit is the farm that furnishes adequate employment throughout the year to the average farm family. Experience has also shown that combinations of farmers for cooperative production are rarely advisable, but the farmers in a given section usually produce the same assortment of crops, and their farm needs for supplies, such as implements, fertilizers, seeds, spray materials, and packages, are practically the same. Many of these requirements can be anticipated, but the common practice is to depend upon local dealers to carry these standard articles in stock, awaiting the day when the farmer wishes to use them. In many sections it is customary in the spring for farmers to ask the local merchants to charge the amount of all purchases until harvest time in the fall. This practice compels the merchant to buy in small quantities, shipments being received under relatively high local freight rates. He must buy on credit or else borrow large sums of money, for the use of which he must pay interest. The dealer must pay cartage charges and must own or rent stores and warehouses. He has taxes and insurance to pay on his stock; he must employ clerks to wait on his customers, and pay liberal advertising bills to attract trade. Frequently there are expenses for the delivery of goods. Usually where credit is extended an advance in prices must be made to cover the occasional loss due to bad accounts.

If customers need or require such forms of assistance, they have no right to complain if the merchant includes a reasonable charge for the service in making the price for his goods. In fact, much of the complaint about present-day high prices is unreasonable, as increased prices frequently are due to the increased service required by consumers and rendered by dealers. If people insist upon being waited upon, they must expect to pay those who thus serve them.

OBJECTS OF COOPERATIVE PURCHASING.

ELIMINATION OF WASTE.

In the farmers' general plans for improving their condition it is necessary for them to take advantage of the cooperative principles for conducting their business, to the end that they also may be able to eliminate waste. Efficiency is the watchword, and the farmer should pay for necessary and efficient service only. In case he finds that he can serve himself more efficiently than others are serving him, if he can install and operate his own business machinery, arrange to pay cash, or furnish his own credit, he should do so. The trade should and usually will consent to meet him on this thoroughly sound basis.

If it is good business and entirely proper for manufacturers, wholesalers, and retailers to unite in their respective organizations, not to control prices or restrain trade, but for greater business efficiency and to eliminate waste, what argument should induce farmers to refrain from similar action to improve their business? What can the manufacturer gain by such organization which the farmer can not? Is the average intelligence of the manufacturer less than the average intelligence of the American farmer? If it is advisable for the manufacturers and dealers to federate into State and National associations for the above-named purposes, by what line of reasoning do some conclude that it is unnecessary or absolutely improper for the farmers to organize even on a community basis?

SECURING OF HIGH-GRADE GOODS.

The farmer is interested first of all in securing goods of standard quality. Large amounts of spraying and fertilizing chemicals are now used on many farms, and it is essential that these materials be of high grade and free from impurities. The amount purchased by each grower is not sufficient to warrant having chemical analyses made, but where full carloads are purchased by a group of farmers a composite sample may be taken, and one analysis will show the average quality of the whole.

STANDARDIZATION OF SUPPLIES.

Another effect of cooperative purchasing has been to bring the farmers together in the use of the same make of implements, fruit packages, etc. One western fruit association agreed on one style of power sprayer where a dozen or more were formerly sold. (See Pl. I.) Not only did they save a large sum on the purchase price, but one line of repairs now supplies their needs, and parts can be kept on hand for sale to all members at a great saving.

Another association secured the adoption of one style of fruit package where no less than eight had formerly been in use. Manufacturers who formerly had to keep in readiness eight styles of basket forms and eight kinds of supplies can now devote their entire force and factory to the making of one style, thus lessening the cost of making and decreasing the selling price, while insuring a constant supply.

The advantages to be gained through a farmers' cooperative marketing association have been mentioned in a previous yearbook article,[1] but it must be remembered that in all cases the advisability of a cooperative organization depends upon the probability of more efficient service being secured thereby.

FORM OF ORGANIZATION FOR PURCHASING ASSOCIATIONS.

The buying of farmers' supplies is a much more simple undertaking than the selling of farm produce, because naturally the trade is much more willing to exchange goods for money than it is to part with money for goods. Therefore a buying association requires a less complicated form of organization than does a marketing association. Persons with good business experience should be selected for the officers, the secretary usually acting as business manager. A board of five or seven directors, that number including the executive officers, should conduct the business. All persons who handle any funds or property should be bonded. A small annual membership fee is often advisable to provide for the expenses of the association. Each purchaser may also pay an additional small per cent in excess of the cost of the goods he orders to cover salary of manager, postage, printing, and any other expenses connected with the business. Paying the manager a small per cent on the business handled encourages him to work for members and orders, but the total amount paid him in any one season or year should be limited to a reasonable sum, based on the character of the business and the value of the services rendered. Unless a supply of goods is to be kept on hand, no warehouse or store building is needed. Fertilizers, spraying materials, packages, feed, coal, and other supplies that are bought in carloads should be delivered direct from the car to save expenses and possible loss in rehandling. It must be kept in mind that the object is to secure goods of highest quality and to buy such goods at the lowest price by buying under contract in large quantities for cash.

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[1] Bassett, C. E., Moomaw, C. W., and Kerr, W. H.: Cooperative Marketing and Financing of Marketing Associations. U. S. Department of Agriculture, Yearbook 1914. (Yearbook Separate 637.)

MANNER OF TRANSACTING BUSINESS.

USE OF ASSOCIATION AS A CLEARING HOUSE.

The association secures sealed bids from dealers or manufacturers for supplying such of their goods as the association members may desire to buy from time to time during the season. Whenever a member wishes some of the contract commodities, he draws up his order from the confidential circular price list, which is supplied to all members by the association, and sends it direct to the secretary or manager. With it he sends a draft or the cash to cover the amount of the order. There are two methods for handling these orders. Either the secretary mails the order to the wholesaler with a draft to cover the cost, and the shipment is made direct to the member, or the secretary may collect from the members their orders and cash to cover them, then by combining these orders he may have full carloads shipped to a central point, thus saving freight. In this case the members take their goods direct from the car.

The association list price to members may be a few cents higher than the contract price, this slight difference being enough to cover the office expenses of handling these accounts. The advantage of this plan is that it requires no capital on the part of the association, and the danger of any loss is avoided. The disadvantage is that dealers hesitate to quote prices much below the market unless they are assured of certain definite orders. Experience has shown that, although associations may do their utmost to keep these prices confidential, some members will boast to nonmembers of their lower prices and in many cases members have made use of these confidential price lists to hammer local dealers down to even lower prices. Such practices demoralize the market and cause dealers to refuse to bid for business of this class. If members are willing to give advance orders for their season's needs and pay cash, the association manager can go into the market and secure bids to fill these definite orders at the very lowest cash price.

ATTITUDE TOWARD LOCAL MERCHANTS.

The cooperative plan of buying farm supplies should not disregard the local dealer. The merchant who in the past has extended credit and rendered other valuable services should be the first considered when there is cash to be expended. The cooperative committee should go to such local firms and explain that their members are now in condition to perform certain service which formerly has been rendered by the dealers, and, in view of their less exacting requirements, they expect to save to themselves the price formerly charged for that work. In several cases the merchants have welcomed such an arrangement, and it resulted in the creating of an excellent local spirit. The local dealer furnished the goods at a very small profit, because he was not obliged to render the usual service. In many cases the local dealer has the exclusive agency of the most desirable lines of goods, and this plan makes it possible to save on the exact class of goods wanted, but in such a transaction the local dealer should be willing to act as the agent of the buying association so as to work for the interests of its members.

The possible saving to be accomplished through cooperative buying is illustrated by the fact that in one case a State cooperative association assembled so many orders for spraying chemicals that they were able to buy very much cheaper than were regular dealers. As a result a large number of retail dealers in that State joined the association, so as to buy their store supplies of these chemicals through this association.

THE ORDER FORM BILL OF LADING.

Groups of Pennsylvania farmers have been doing very good work with a slightly different plan. Instead of sending the cash with the order to the secretary or manager, each member deposits with his local bank the necessary cash or arranges for the proper credit. The bank certifies that the money is there awaiting the shipper's draft. This certificate is then forwarded with the order to the secretary of the association, who presents these facts to the shipper. He ships the goods to his own order, attaching a draft and the indorsed negotiable bill of lading, also an invoice showing the unit price, weights, and totals of the shipment. The shipper fills in the proper entry in the bill of lading, requiring the railroad to notify the ultimate consignee of the arrival of the goods.

The chief point in this plan is the order form bill of lading. This is negotiable, represents ownership of the property, and must be surrendered, properly indorsed, to the railroad before the goods will be delivered. The exchange handles no money except its annual dues, extends no credit, and orders no goods except for cash in the bank. Therefore there is no liability on the part of a member except for his own purchases; no opportunity for loss, because his money remains in his home bank until he receives his goods; no chance for graft, since the transaction clears through his home bank. The bank is paid a small fee for its service.

COOPERATIVE WAREHOUSES.

While the safest and most economical purchasing plan is that of collective or joint purchasing, with delivery direct from the car, this enterprise sometimes results in the acquisition and use of a warehouse when the business grows large enough to require it. Farmers' clubs often make use of an extra room in their hall for the storing of repair parts and surplus stocks of farm staples. But this plan of buying in advance of the farmers' needs involves extra cost to cover rent of a warehouse, capital or credit for buying goods, cartage from station, insurance, expense of salesman in charge, etc. Any association that carries a large stock of supplies on hand for its members is almost sure to experience losses caused by a drop in market prices, or, on account of a change in the fancies of members, it may have a stock of some goods on hand for which there is no demand. For example, when arsenate of lead became popular as an insecticide one association was caught with a quantity of Paris green on hand. The demand for Paris green became so slight in that locality that the market price dropped, and the association suffered a severe loss. Such supplies as coal, salt, lime, lumber, implements, seed, flour, and feed often are handled economically by farmers' cooperative elevators for their members, but as far as possible delivery should be made direct from the car.

COOPERATIVE MANUFACTURING.

Some associations assist their members by still another line of work involving the manufacture or simple mixing of fertilizers; the making of barrels, boxes, or other containers; and the manufacture of spraying materials, cement posts, or blocks. Cooperative work of this sort requires experience, large capital, and careful business management. It should be attempted only when these factors are present and when market prices are so extremely high that there is a reasonable probability that cooperative manufacturing will result in materially improved quality, substantially lower prices, or both.

COOPERATIVE STORES.

Attempts of consumers, both rural and urban, to establish cooperative stores have been quite common in this country for many years, and in a small proportion of cases they have met with success. In a majority of instances the result has been failure, due largely to a lack of business experience with resultant poor management, small capital, inadequate accounting and auditing systems, and a lack of continued loyalty on the part of the members themselves. Some of the successful cooperative stores have gradually been taken over, through purchase of stock, by private parties and are now cooperative in name only. One of the most successful cooperative stores on record is owned by miners who earn good wages, are paid regularly, and live in a section that has to bring in most of what it consumes. Most of these miners are foreigners whose wants are for staple rather than fancy goods. They do their own delivering and need and expect no credit. Such a condition is most nearly ideal for the success of such a store, differing materially from those cases where the proposed patrons demand assortments of fashionable goods and are accustomed to receive credit, frequent delivery of goods, and similar expensive services. In any community which already has several stores it is better to buy one already in existence and convert it into a cooperative enterprise rather than attempt to establish a new business.

While some cooperative stores sell goods at a small fixed percentage above cost, enough to cover all running expenses, experience indicates that a more satisfactory way is to sell at regular local prices and divide the profits at the end of the year or at certain regular periods on the basis of the total amount purchased by each patron. This manner of dividing profits marks the difference between a cooperative store

THIRTY-FOUR POWER SPRAYERS PURCHASED COOPERATIVELY BY A WESTERN FRUIT ASSOCIATION AT A SAVING OF OVER $1,000.

and one which is privately owned. In a privately owned store profits are divided on the basis of capital invested.

The chances for success in conducting cooperative stores are not as numerous or as great as many imagine. They should be attempted only after a most careful survey of local conditions and then only when sufficient capital and high-grade management are available.

SELLING PRICES.

Irrespective of the cash or credit element, goods may be sold to the members either at cost, plus office expense, interest, etc., or at regular retail price.

While the method of selling at cost plus the office expense, interest, etc., is liked by the members, who thus pay the smallest amount of cash for their goods, many manufacturers, contrary to the antitrust laws, insist on a specified retail selling price for their goods, claiming that this is necessary to prevent "price slashing" and ultimate demoralization of the retail trade in their commodities. This sentiment existing among some of the manufacturers makes it difficult to buy from them without agreeing to their terms of resale.

Experience has shown that, after contracts have been made with dealers or manufacturers for certain supplies, other dealers who were unsuccessful in bidding for the contract sometimes arrange to meet these prices or offer even better terms. While these lower prices are the indirect result of the action taken by the cooperative association, nonmembers profit by the cut in prices. However, the temporary "slashing of prices" demoralizes trade and destroys the inducement for nonmembers to unite with the association. For this reason several associations practice the plan of selling at regular retail prices. This plan is preferred by many because it is less disturbing to local trade. At the end of the season the profits may be divided among the members and nonmember patrons in the form of dividends, based on the total amount of purchases each has made through the association. It is believed by some that the paying of full dividends to members and half dividends to nonmember patrons tends to attract more nonmembers to join. Experience has shown that outsiders are attracted quite as much by low prices at time of purchase as by the plan of paying regular prices with the expectation of getting a part of their money back at some future time. The plan to be adopted should depend upon local conditions and local markets.

CASH IN ADVANCE.

The success of any of these plans depends in a large degree upon holding fast to the practice of demanding from all members cash or proper bank credit with each order. This makes it possible for the organization to secure the largest cash discount and insures that each ordering member will take his goods from the car on time. The manager who accepts other than cash orders will be liable to have some uncalled-for goods on hand to store or sell. It has been pointed out by opponents of the cash plan that some farmers have no credit at the bank and lack the cash at the time of ordering. If a bank does not feel safe in loaning money to such a person on account of his character, would an association be safe in extending credit to him?

As notable exceptions to the foregoing rule, a few western associations make a practice of advancing supplies to their members upon a credit account. But these associations have arrangements for borrowing necessary money, and they are protected against loss by holding contracts from these members, which give the association control of the sale of the member's products. This is a form of cooperative credit secured by a lien on the growing crops.

Communities that have never had any cooperative experience often find it easier to begin with a buying than with a selling plan, where local conditions are such as to warrant that start. When the operation of that plan has educated the members to the spirit of working together and accustomed them to facing difficulties that are sure to arise, they are better prepared to undertake the more intricate details of a plan for successfully marketing their products. The cooperative spirit of a community is a matter of growth. As the child learns to walk before it runs, so a community should be satisfied to begin working together in the simplest ways and should undertake more elaborate plans only as their cooperative strength and confidence is developed.

WINTER CROW ROOSTS.

By E. R. Kalmbach, *Assistant Biologist, Biological Survey.*

THE GATHERING THOUSANDS.

IN many respects our crow roosts present the most wonderful of bird phenomena still taking place in the thickly settled Eastern and Central States. A picture drawn from observations covering a period of several years at winter roosts not far from the National Capital may be presented, with no attempt, however, to recount all the varied activities of these odd birds. The account is merely of a typical performance of the gathering clans at their nightly roost, and is equally applicable to hundreds of other roosts located at various places along the watersheds of the several rivers which make their outlet near the middle of our Atlantic coast line; the performance might even be considered as taking place at localities in our Central States, as in central Indiana, Illinois, or eastern Missouri, not far from one or another of the great watercourses where open water may be found throughout the winter.

One can readily picture a pair or two of melancholy crows perched in the tops of neighboring trees and exposed to wintry blasts. It is midafternoon, and for the greater part of the day they have hunted together, and hunting was not at its best. An outstanding corn shock, no doubt, had furnished a few dry kernels; the marrow of an old bone possibly had offered a morsel of nourishment and an incentive for a lively tilt; the river bank, thoroughly searched for days past, probably contributed as its only donation to several ravenous appetites the remains of a solitary crawfish. But in the rank vegetation of a near-by hill these crows had found on this day, as on numerous previous occasions, the wherewithal to fill their craws; this produced a sensation that was at least temporarily satisfying, even if the nutritive value of the food was not of the highest. There a copious growth of low vegetation—ragweed, pokeberry, poison ivy, poison sumac, smooth sumac, and greenbrier, with an occasional cherry, dogwood, or sour gum supporting vines of Virginia creeper and grapes—had borne a fair crop of fruit. It was the one thing for which our crows were grateful, and in times of severe weather was all that stood between them and actual starvation.

Another black pair may be imagined as flapping laboriously by, flying low, and taking advantage of every knoll, tree, or even corn shock which might serve to break in the least degree the force of the head wind against which they are toiling. Their passing "caw" is answered and the birds in the tree tops take wing and fall in behind. This company travels probably a mile, when another group rises from a clump of sheltering pines and joins them. A stretch of open country a little farther on gives in greater perspective a view of what is taking place. Ahead are other crows, usually grouped in small flocks, all struggling against that relentless wind. All are traveling in the same direction and in precisely the same unmarked path. Behind follow still others in a more or less broken line, undulating and conforming as nearly as possible to all inequalities of the landscape. An hour or more of such labor and the once rather broken line has become more populous. A steady stream of black forms comes from as far as one can see, passes by, now boisterous, now silent, and then struggles on in the opposite direction until the birds become mere dots in a sinuous, dusky path.

And that is not the end. For miles more they travel. In fact, not until sunset or after is there an indication that the destination is near. Our low-flying black horde, producing a distinctly audible, silken rustle with its many beating wings, approaches a certain heavily wooded area over the center of which hovers a hazy, cloudlike mass—a countless, gnatlike swarm of clamorous crows. The seemingly tireless birds, at last nearing their goal, extend their massed ranks over a broad stretch a hundred yards or more wide. Their individual calls are lost, becoming part of the growing din as their batlike forms are swallowed up in this constantly growing maelstrom.

From probably three or four lines of flight similar to this one is the gathering fed. From the front, just skimming the tops of the trees, enter those struggling against the wind; on the sides are birds awkwardly tacking against a lateral gale; and from the opposite direction, sailing high on slowly moving pinions, are those individuals which have had an easy time on their inward journey. With remarkable skill these latter glide downward in winding courses, and at times make sheer perpendicular drops of a hundred feet or more. A spread of the wings deftly arrests their fall and they alight on some slender limb. The formerly bare branches of hickories, oaks, and chestnuts now strain heavily with the weight of closely perched birds. Occasionally an overladen branch cracks, scattering its load of startled crows, which rise, add their calls to the now deafening roar above, and join in the whirling rabble to seek new resting places.

The ever-increasing clamor has by this time become a veritable babel. Medleyed with the more familiar corvine notes are multitudes of others, some weird to the extreme. One can hear a rattle as of a stick run rapidly along a picket fence, the irritating metallic notes of a defective tin horn, soft liquid mutterings, catlike cries, and a thousand other calls which defy imitation and beggar all description.

As the darkness deepens, less and less is heard of the open-throated "caws." A gradual softening of notes has almost imperceptibly been toning down the din throughout the whole assemblage. Occasionally squads of a hundred or more black forms take wing and follow back along one or another of the now rapidly diminishing lines of flight, returning after a short sortie. It would seem almost as if they were taking account of the laggards and those delayed by the elements.

When practically all illumination in the western sky has vanished and when in walking one has to raise a guarding hand against obstructing twigs, a lull comes rather abruptly over the assembly. Desultory gurglings alone are heard and only a few restless birds are flying about. (Pl. II.) The impression is received that this odd performance has come to a close and the birds have settled for the night; but, suddenly, without cries of alarm, and with only the rustle of wings to attract attention, a squad of several hundred passes overhead. Others of greater proportion follow close behind. Crows in the tops of the more distant trees are seen taking wing, and then, like an oncoming gust of wind, the impulse sends those directly overhead into the air. The multitude of black forms quite perceptibly obstructs what little daylight still remains, and for several minutes the sky is thus darkened. The flight this time is but a short one. A dense stand of pine silhouetted in black, possibly a quarter of a mile away, is rapidly absorbing the incoming thousands. A few moments more and the batlike forms have entirely disappeared; only an occasional gurgle or muffled rattle betrays their presence. The crows have arrived at their roost and have settled for the night.

The foregoing covers only half of that odd daily winter performance of our common crow. The morning witnesses essentially a reverse of what has taken place the night before, though the departure of the gathered thousands on their daily search for food takes considerably less time.

THE ROOSTING HABIT.

While crows, even in the nesting season, are more or less clannish, their flocking habit is most highly developed during the colder months. Soon after the nesting season one may expect to see evidences of it, but in the latitude of Washington, D. C., it is not until the end of September that roosts are well established. At this time the migratory habits of these birds have brought together in a comparatively small area the bulk of the crow population of North America, so that the territory from Connecticut south to Virginia and westward to beyond the Mississippi River harbors these birds in extremely large numbers. Their roosts are occupied with considerable fluctuation in population till the advent of milder weather in March, when the numbers rapidly decrease.

That the roosting habit has been long established, and is not a trait acquired since the activities of man have so decidedly altered the character of the winter range of these birds, there can be little doubt. Probably the oddest and one of the most populous of the earlier-known crow roosts was that of the "Pea Patch," an island in the Delaware River. Wilson's account[1] of the tragic destruction of this colony gives us a good idea of one of the calamities that may befall a highly gregarious species.

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[1] Wilson, Alexander. American Ornithology, Vol. IV, pp. 82–84, Philadelphia, 1811.

> The most noted Crow roost with which I am acquainted is near Newcastle, on an island in the Delaware. It is there known by the name of the Pea Patch, and is a low flat alluvial spot of a few acres, elevated but a little above high water mark, and covered with a thick growth of reeds. This appears to be the grand rendezvous or head quarters of the greater part of the Crows within forty or fifty miles of the spot. It is entirely destitute of trees, the Crows alighting and nestling among the reeds, which by these means are broken down and matted together. The noise created by those multitudes, both in their evening assembly, and reascension in the morning; and the depredations they commit in the immediate neighbourhood of this great resort, are almost incredible. Whole fields of corn are sometimes laid waste by thousands alighting on it at once, with appetites whetted by the fast of the preceding night * * *.
>
> The strong attachment of the Crows to this spot may be illustrated by the following circumstance. Some years ago a sudden and violent north-east storm came on during the night, and the tide, rising to an uncommon height, inundated the whole island. The darkness of the night, the suddenness and violence of the storm, and the incessant torrents of rain that fell, it is supposed, so intimidated the Crows that they did not attempt to escape, and almost all perished. Thousands of them were next day seen floating in the river; and wind shifting to the north-west, drove their dead bodies to the Jersey side, where for miles they blackened the whole shore.
>
> This disaster, however, seems long ago to have been repaired; for they now congregate on the Pea Patch in as immense multitudes as ever.

A variety of situations, differing widely in the character of vegetation, are acceptable as sites for crow roosts. Pine and other evergreens are most frequently chosen, though records of crows passing the night in groves of deciduous trees, as oaks and maples, are common. A large roost in Crawford County, Kans., is in a heavy stand of catalpa. That crows roost among such low vegetation as reeds or tall grass has been noted, while in some cases even in severe weather the birds have been known to gather on the ground in open fields or on exposed sand bars.

NUMBERS.

Many attempts have been made to estimate the number of birds which gather at some of these roosts. In doing this observers usually follow one of two courses: one is to count the birds as they arrive in the evening along their definite lines of flight, of which three to six are usually found at each roost; the other is to count the birds in a limited portion of the assembly after they have settled for the night and then estimate the total for the known area of the entire roost.

The daily fluctuation in the number of birds at one of these gatherings, due to change in weather, together with variation caused by birds stopping at some local roost when they have been overtaken by darkness, makes the computing of their number difficult and, in large measure, unsatisfactory. The wide variation of the estimates made by several observers at the same roost readily shows the uncertainty of results. Furthermore, the impression made upon one not very familiar with the sight of the gathering thousands is quite likely to be an exaggerated one.

A roost at Arlington, Va., was supposed to have contained at the height of its occupancy from 150,000 to 200,000 birds. These figures have been averaged from the records of a number of observers and may be regarded as reliable. The "Arbutus" roost, near Baltimore, contained in 1888, according to the account of Mr. C. L. Edwards,[1] a population of more than 200,000. The St. Louis roosts, about 1886, contained from 70,000 to 90,000 crows. One at Peru, Nebr., at the same time had 100,000 to 200,000. Other roosts numbering about 200,000 were recorded about the same year in New Jersey at Hainesport, Merchantville, Reedy Island in the Delaware River, Bridgeboro, and Centerton; and in Pennsylvania at Davis Grove and Camp Hill. Some of these roosts are still occupied and are said to harbor thousands of birds. A roost at Woodridge, near Langdon, D. C., which appears to be the successor to that observed some years ago at Arlington, Va., is reported by Mr. A. H. Howell, of the Biological Survey, to have harbored in the winter of 1910–11, 270,000 birds. Mr. Howell estimated that fully 100 crows a second entered the roost at the height of the influx, and added that as this would be 6,000 every minute, if the same rate continued for three-quarters of an hour, which is about the time occupied by the gathering of the clans, 270,000 crows would be established for the night within an area of 5 to 10 acres. He says that while this estimate may be short of the actual number it certainly does not greatly exceed it. Dr. S. D. Judd observed this same roost in February, 1901, and estimated 100,000 as its population at that time.

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[1] Edwards, C. L., Amer. Journ. Psychology, Vol. I, No. 3, p. 454, May, 1888.

What was considered to be the successor to the Woodridge roost, and the one upon which the writer made observations, gave a much smaller number of birds. Observations made on January 8, 1911, under a line of flight coming from the east, indicated that from 1,800 to 1,900 birds flew past. The four lines of flight entering the roost would probably give a total population of about 7,500. On this occasion a strong wind was blowing at right angles to the direction of flight, and, as this caused the birds to spread out in a pathway fully half a mile wide, doubtless many were overlooked. About the first of January, 1912, the crows forsook this roosting place, and, again resorting to the previous site near Woodridge, combined with a small number which had been using this place. The writer visited this roost on January 28, 1912, and estimated the number coming from the north at about 6,500. This would probably mean that the whole roost was occupied by from 25,000 to 30,000 birds.

LOCATION OF ROOSTS.

In response to a circular letter requesting information on the economic status of the crow, issued by the Biological Survey in December, 1911, considerable data bearing on the location, size, and character of crow roosts occupied during the winter of 1911–12 were secured. Upward of 290 correspondents submitted notes of this nature, and while it can not be claimed that the data obtained are anything but a mere fragment of knowledge, the compilation of these facts brings together much more information on the problem of winter crow roosts than has heretofore been collected.

On the map on page 90 (fig. 1) is recorded a total of 170 roosts of varying size. This shows the areas in which a rather restricted migratory movement has assembled a large part of the crow population of North America. East of the Appalachians and grouped on the lower watersheds of the Potomac, Susquehanna, Delaware, Hudson, and Connecticut

Rivers are many of the most populous roosts, some of which are reported to contain over 100,000 birds. Here the open water maintained by most of these streams throughout the winter, together with the extensive tidal flats within easy reach of these rendezvous, assures the crows of a fairly ample supply of food. In the Middle West a greater area of favorable winter habitat has permitted the birds to establish their roosts over a much broader area. As in the East, the winter crows of the Mississippi Valley have selected a region well supplied with their customary winter food. Here the roosts of greatest size are found in southern Indiana, central Illinois, and westward along the Missouri River, while eastern Kansas and northern Oklahoma also support vast numbers. During fall and early spring the northern States from Maine west to the Plains harbor many migrants, and these form at times temporary roosts of considerable size. From December to the middle of February, however, the birds which frequent these States are comparatively few in number and their roosts seldom contain over a few hundred individuals. The more important of these are located along the coast of Maine and in west central New York in the vicinity of Seneca and Cayuga Lakes. In the South the largest colonies are found along the Atlantic and

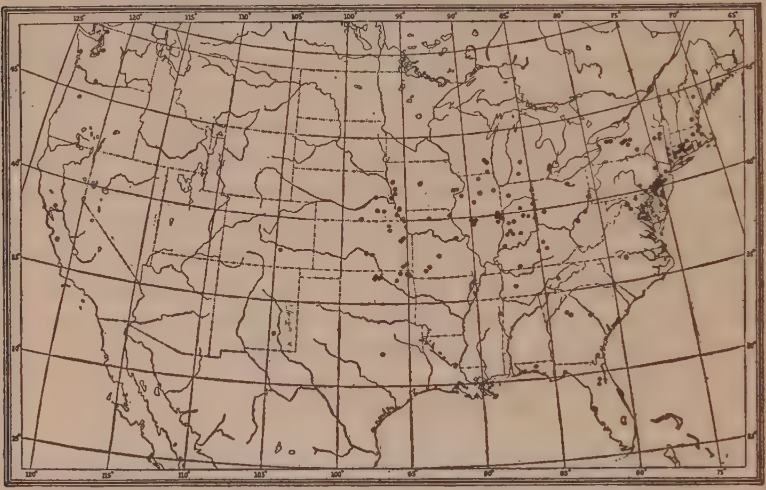

Fig. 1.—Map showing location of crow roosts occupied in the winter of 1911–12.

Gulf coasts, and are probably made up of birds, resident in southern States, which have congregated at favorable spots. Fish crows often form the bulk of the population of southern roosts, and in fact are common in colonies as far north as Maryland. On the Pacific coast, owing probably to the milder winter climate, the roosts are found at higher latitudes, the coastal region about Puget Sound being an area particularly well supplied.

CROW ROOSTS KNOWN TO HAVE BEEN OCCUPIED IN THE WINTER OF 1911–12.

As a means of presenting such additional information about winter roosts as could not be shown on the map (fig. 1), the following tabulation will be of interest. In presenting it, attention must be called to the fact that in most cases the number of birds recorded is a mere guess by the observer. Some of these estimates are obviously exaggerated. On the other hand, many records of small groups of crows (50 to 100), especially in northern States, have not been noted. This list must not be considered in any way a census of the winter crow population of the United States, as there doubtless are many roosts which have not been recorded.

Arizona: Santa Catalina Mountains.
California:
  Monterey. 500 birds.
  Petaluma. Large numbers on 5 to 10 acres of eucalyptus grove.
Colorado: Beulah. Several hundred on 100 acres of fir and spruce on "Old Craggy." Not used every winter.
Connecticut:
  Bethel.
  Cedar Mountain, near Hartford. 3,000 on 2 acres of hemlock grove.
  Jewett City. 600 birds.
  New Britain. Thousands on 350 acres.
  Norwich. 2,000 to 3,000 in pine and hemlock.
  Plainville.
  Redding. 2,000 on 1½ acres on southern slope of mountain.
  Ridgefield. Large numbers.
  Wethersfield. Thousands of birds in cedars.
  Windsor Locks. 500 on 2 acres of maple, oak, hickory, chestnut, and pine.
Delaware:
  Milford. 1,000 to 3,000 on 25 acres of swamp.
  Wilmington.

District of Columbia: Woodridge (near Langdon). 20,000 to 30,000 on 10 to 15 acres, mainly pine.

Florida:
- De Funiak Springs. Few birds in shortleaf pines in swamps.
- Orange Lake. 30,000 on 36 acres (on island). These are fish crows.
- St. Marks.

Georgia:
- Athens. Two roosts, 100 and 200 each, in pine and oak.
- Augusta. Thousands on 50 to 100 acres of gum swamps and rice fields.
- St. Marys. Many thousands on 10 to 20 acres of cedars in river swamp.

Illinois:
- Auburn. 5,000 on 10 acres of walnut grove.
- Champaign County. 10,000 to 12,000 in "Bowse's Grove."
- Dudley. Large numbers.
- Henry. Two roosts, 400 and 1,000 each on 3 acres.
- Joliet. 200 on 264 acres.
- Newman. Thousands of birds.
- New Windsor. 1,000 in oak and other hardwood trees.
- Ottawa. Thousands on 4 acres of pine.
- Rockford. Birds on 2 or 3 acres of second-growth oak.
- Springfield. Several roosts consisting of large numbers.
- Vermillion County.

Indiana:
- Amo. 300 on 8 acres of second-growth timber.
- Asbury Chapel (near Bicknell). 500 to 1,000 in cedars.
- Berne. Large numbers.
- Boston. 3,000 on 3 acres.
- Evansville. Birds in willows.
- Greencastle. Large numbers.
- Greenfield. Several hundred thousand on 5 to 10 acres of elm, soft maple, and oak.
- Lyons. 1,000 to 2,000 on 100 acres.
- Mitchell. Thousands of birds.
- Monon. Thousands of birds.
- Richmond. 10,000 to 50,000 on 5 acres.
- Rushville. 3,000 on 40 acres.
- Russellville. A few thousand on 10 acres of low growth elm, basswood, and beech.
- Springville. Thousands on 2 acres. On island.

Iowa:
- Clarinda. 1,000 birds.
- Modale. Million birds (?).[1]

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[1] The question is the writer's.

Onawa. Tens of thousands of birds on bar land in cottonwoods and willows.
Pioneer. 1,000 birds.
Salix, Woodbury County.
Springdale.
West Branch.

Kansas:
Clinton. 500 birds.
Girard. Large numbers on 2 square miles of catalpa grove.
Labette County.
Lawrence. 7,000 to 10,000 on 40 acres of oaks.
Maize. 6,000 to 10,000 in cottonwoods.
Onaga. Two roosts. 200 and 400 in walnut trees.
Wichita. Several roosts. 500 to 2,000 on one-half to 4 acres of cottonwoods.

Kentucky:
Guthrie. Thousands of birds in cedars and oaks.
Harrodsburg. Large numbers.
Lexington. Several roosts, 2,000 to 5,000 each.
Versailles. 1,000,000 birds (?).[1]

Louisiana:
Avery Island. Several roosts, a few thousand each, in live oak, sweet gum, and wax myrtle.
Baldwin. Birds on 3 acres of oaks and pecans.
Mansura. Thousands of birds on 1 square mile of willows in lake.

Maine:
Bowdoinham. Birds on the coast.
Farmington.
Mount Desert Island. A few birds.
Pine Point.

Maryland:
Avondale (Carroll County). 50,000 birds.
Halethorp. 50,000 to 60,000 birds.
Hill's Bridge, near Upper Marlboro. Birds on 200 acres of pines.
Laurel.
Liverpool Point. 1,000 birds.

Massachusetts:
Crow Point (Plymouth County).
Framingham. 500 birds.
Gloucester. Large numbers in white pines.
Hampden. 2,000 in mixed growth of trees.
Ipswich. Several hundred per acre on a few acres of pines.

Michigan:
Kalamazoo. 500 birds.
Rockford. Birds on 4 acres of oaks and pines.
Wayne, Wayne County. 300 birds.
Wayne County. 200 in evergreens.

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[1] The question is the writer's.

Mississippi: Muldon. Several thousand birds.

Missouri:

Billings. Millions of birds (?).[1] In timber and old cornfield.

Bucklin.

Corning. 1,500 on 1,000 acres of willows on sand bar in river.

Iberia. Birds in oaks.

La Grange. Not a large number of birds. On islands in river.

New Haven. 1,200 on 4 to 8 acres of willows and box elders on an island.

Springfield.

Nebraska:

Lincoln. Several roosts of several thousands each on 10 acres.

Linwood. 600 to 700 birds.

Omaha.

Peru. 100 in willows on bank of river.

Pleasant Dale. Birds on 6 to 7 acres.

Republican River. Several hundred in cottonwoods and willows.

New Hampshire: Barrington (Strafford County). 1,000 in white pine grove in valley.

New Jersey:

Bernardsville. Thousands of birds.

Princeton.

Ringoes. Tens of thousands of birds on 20 acres.

Salem. 25,000 on 20 to 30 acres of oaks.

Yorktown. Thousands of birds.

New York:

Auburn. Large numbers of birds.

Ballston Lake, Saratoga County. 300 to 500 birds.

Bergen.

Gardiners Island. 300 to 2,000 in mixed woods.

Ithaca. Birds in three roosts, aggregating 2,000 to 2,500, in junipers.

Kinderhook. Birds on 5 to 10 acres of hemlocks.

Lisle. Birds in beeches.

Mount Sinai, Long Island. Several hundred birds in cedars.

Pattersonville. Thousands of birds in evergreens.

Rochester. A small number of birds.

Schenectady. 75,000 in low pines.

Varick, Seneca County.

West Point. Several thousand birds.

North Carolina:

Mayodan. Thousands of birds.

Old Currituck Inlet.

Swan Island. 5,000 birds; another estimate, 10,000 birds.

Ohio:

Bridgeport. 1,000 on 3 acres of bushes covered with grapevines.

Dayton. Many hundred birds.

Oberlin. Several thousand birds.

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[1] The question is the writer's.

Oklahoma:

Fairland. Two roosts, 300 and 500 birds, respectively, in oaks.

Kinnison. Multiple millions (?).[1]

Otoe. Three large roosts.

Stillwater. A few large flocks.

Oregon: Salem. Several roosts of 100 to 200 birds in fir.

Pennsylvania:

Bensalem (Bucks County).

Buckingham. 300 to 500 on 5 acres of chestnuts on sandy ridge.

Coatesville. Many thousand birds on 8 to 10 acres of chestnuts and oaks.

Doylestown. 25,000 to 30,000 birds; another estimate, 10,000 in oaks and chestnuts on hilltop.

King of Prussia.

Lincoln University, Chester County. Large numbers of birds.

Mountville. 1,000 birds.

Radnor.

Shawnee on Delaware. Thousands of birds on 2 acres of hemlocks and pines.

Shepherdstown. 2,000 birds.

Rhode Island: Prudence Island. Several hundred birds on 18 to 20 acres of maples and birches.

South Carolina: Ashley River, near Charleston. 2,000 to 3,000 birds in pine woods on island in marsh.

Tennessee:

Columbia. Birds in cedars.

Knoxville (south of). Tens of thousands on small acreage of cedars and pines.

Texas: Waco. 1,000 in cottonwoods.

Vermont:

Burlington. Several hundred on 5 to 8 acres of white pines.

Vergennes. A few birds in evergreens.

Virginia:

Leesburg. 2,000,000 to 20,000,000 birds (?)[1] in second growth of hardwood.

Newport News. Birds on 10 acres of pines.

Washington:

Bellingham. Birds in firs, cedars, and alders.

Camas. Thousands of birds in numerous roosts among fir timber.

Cohasset Beach (Chehalis County). 150 to 200 birds in spruces.

Seattle. Many birds in wooded swamp.

West Virginia:

Bens Run. 300 to 500 principally in yellow pines.

Letart.

Parkersburg. Several hundred birds.

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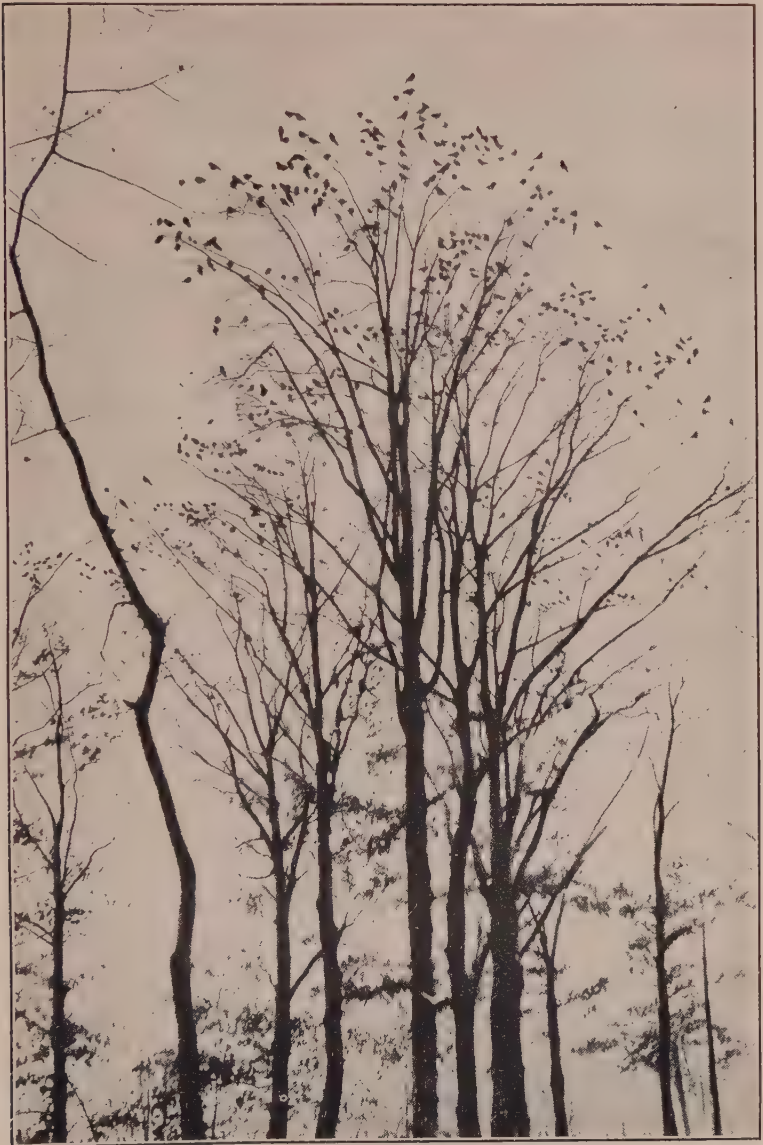
[1] The question is the writer's.

Wisconsin:
Genoa Junction. Thousands of birds in oaks and birches.
Oconomowoc. Thousands of birds in tamarack swamp.
Pewaukee. 2,000 to 3,000 on 30 acres.

WINTER FOOD OF CROWS.

Aside from the purely ornithological interest which these wonderful gatherings of crows possess, considerable economic importance is attached thereto. As in the case of some other highly gregarious species, the damage inflicted is upon a restricted area. Frequently only a farm or two will lose heavily and at times a single field will be stripped, while surrounding areas remain untouched. It is fortunate indeed that crows do not gather in such compact hordes for the express purpose of feeding; little would then be left of outstanding corn shocks; straying poultry would pay dearly for their liberty; and even larger farm animals might suffer from the combined attacks of hungry thousands. But even as it is, in some sections there is just cause for complaint in the vicinity of these roosts. This is especially true in severe weather or on dark, gloomy days, when the birds wander but little from their favorite rendezvous, so that the farms of the immediate vicinity are compelled to support an abnormal number. Damage is greatest in autumn and early winter, when considerable shocked corn is available. In regions where sorghums are raised extensively, as in Kansas and Oklahoma, the damage is at times great.

A very good idea of the winter food of the crow has been derived from examination by the Biological Survey of hundreds of stomachs and also from the débris composed of undigested matter found in quantities at large roosts (Pl. III). From the beginning of October to the end of February animal food comprises less than 18 per cent of the total. Several of the important ingredients are strongly indicative of the aquatic environment in which these birds are found so commonly during the colder months. Crawfish, mollusks, remains of dead fish, and carrion of all sorts are regular items of diet. The crow's consumption of these may be considered to be of a neutral or slightly beneficial nature. In late fall and early winter grasshoppers are eagerly sought, and in sections where the young of certain



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ROOSTING CROWS.

These crows have gathered in deciduous trees preparatory to moving into a clump of near-by pines. Photograph taken after sundown with an exposure of several minutes. The air was filled with flying birds, but only those remaining stationary throughout the exposure made a full photographic impression.

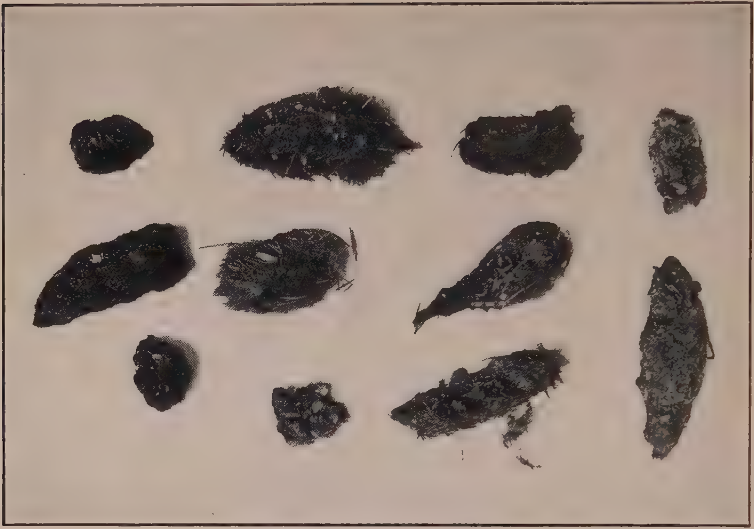

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FIG. 1.—CROW PELLETS.

These consist of masses of undigested food and are disgorged in great numbers at winter roosts.

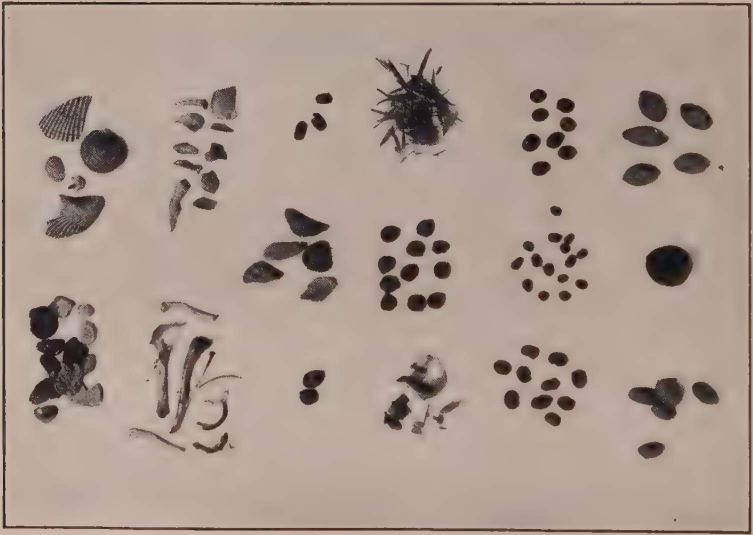

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FIG. 2.—CHARACTERISTIC INGREDIENTS OF CROW PELLETS.

Collected at the Woodridge, D. C., roost in February, 1912. Included are the wing covers of clover-leaf weevils, fragments of crawfish, land and marine mollusks, bones of a small rodent, fragments of larger bones (carrion), hulls of corn and wheat, seeds of greenbrier, sour gum, flowering dogwood, poisonous and nonpoisonous sumac, wild grape, knotweed, an acorn, and gravel.

species are to be found throughout the colder months their remains appear in the stomach contents of crows the year round. Small mammals up to the size of a cottontail, an occasional chicken or wild bird, and a small proportion of hibernating insects of various orders fill out the scanty animal diet.

Roughly speaking, corn comprises about half of the crow's food during the winter months—a startling quantity when considered in the abstract, and were it not possible to interpret this percentage properly, the case of the crow would be well-nigh hopeless on this score alone. Most of this corn, however, is consumed during December and January, when, hard pressed, the birds are forced to forage diligently for every stray kernel of waste grain. Much of the corn taken at this time may be classified under this head. In our Southern States, where shocked corn may frequently be found standing in fields throughout the winter, losses from crows result, especially when the shocks are not well built and snugly tied.

Of wild fruits and seeds the crow consumes a variety during the colder months. These constitute fully a fifth of his winter's food, and in regions where waste corn can not be had they furnish the main food supply. Among these are the various nonpoisonous sumacs, poison ivy, poison oak, greenbrier, pokeberry, bayberry, dogwood, sour gum, wild cherry, and acorns.

Unlike those of many of the more granivorous species, as sparrows and gallinaceous birds, crows' stomachs are not suited to the grinding and assimilation of hard substances. Consequently the food value of many of these wild fruits ceases when the soft outer portion has been removed. To aid in even this process of grinding, we find that crows swallow large quantities of sand and gravel. After a quantity of such fruit has been eaten and the digestible portions assimilated, the remains are disgorged. This disgorged material usually assumes an elliptical or spherical form similar to the pellets ejected by birds of prey. The disintegrated remains of countless numbers of these pellets, the accumulated ejecta of thousands of birds, form a deposit of sometimes an inch or more in depth at long-established roosts.

SEED DISTRIBUTION.

The fact that embryos of disgorged seeds are seldom injured and that a large part of those ejected are capable of germination, brings up an important economic problem—that of the distribution of seeds by birds. Birds generally are recognized as one of the potent factors in the extension and perpetuation of our plant life, and when the seeds of valuable trees and shrubs, or even those of harmless plants, are involved the birds no doubt are performing a valuable service. On the other hand, the dispersal of seeds of the poisonous varieties mentioned must be considered undesirable.

In the case of the crow the danger of introduction of these weeds is of course greatest in the immediate vicinity of winter roosts. A series of nine pellets gathered at one of the former roosts, near St. Louis, and examined by the writer, contained an average of 36 seeds of poison ivy or poison sumac for each pellet. Along with these were seeds of nonpoisonous sumac, grapes, dogwood, hackberry, a wild bean, and a buckthorn. A mass of material gathered at a roost near Baltimore contained 156 seeds of poison ivy and sumac, estimated to be 25 per cent of the bulk of the pellets. These also contained 11 seeds of nonpoisonous sumac, 6 of greenbrier, 4 of juniper, and 1 of hackberry. Mr. W. L. McAtee, of the Biological Survey, has informed the writer that at the roost formerly located at Woodridge, near Langdon, D. C., he recorded the following species of plants in such abundance as to justify the belief that they had sprouted from seeds brought there by crows: Poison ivy, poison sumac, flowering dogwood, sour gum, arrowwood, and frost grape. He also stated that in 1 square yard there were 51 plants of poison ivy. In fact, wherever a crow roost has been established for a period of years a substantial growth of one or more of their characteristic food plants is bound to result, provided, of course, such other factors as soil, moisture, exposure, etc., are favorable.

That this is only a portion of such material scattered by these birds there can be little doubt. Ranging as they do for many miles from their roosts during the day, the ejecting by crows of seeds of poisonous plants at widely scattered places is a more serious problem than is that presented at the roosts, where the growth of the plants is confined to a limited area. At the same time the conditions about the roosts are very often unfavorable to the growth of such seeds, as would be the case in the dense stands of pine so frequently chosen, while the seeds dropped at various feeding places during the day have a much better chance to sprout.

Although it must be admitted that any agency aiding in the reproduction of poisonous plants should not receive encouragement, it will be well before passing judgment on the crow to notice other factors working toward the same end. The records of bird stomachs examined by the Biological Survey show that no less than 65 species of birds feed on poisonous species of ivy and sumac. Many of these, considered among our most beneficial birds, possess the same objectionable habit of disgorging noxious seeds of which the crow has been accused. In several cases also the percentage of such food eaten by these birds exceeds that of the crow. To attempt to restrict the spread of poison ivy and poison oak by a war of extermination upon the crow would be akin to an effort to check the chestnut-blight disease by exterminating all bird life. In each case there are many other agencies producing the same results, so that the elimination of one only would have no appreciable effect. At the same time it may be mentioned that poison ivy readily reproduces itself through its roots and often spreads over considerable areas in spite of vigorous efforts to exterminate it.

CONCLUSION.

Ornithologically, aside from all economic consideration of good or harm arising from the gathering of immense numbers of crows, a winter crow roost must be regarded as one of the most wonderful of bird phenomena still existing in close proximity to large cities. In many instances the lines of flight pass daily over metropolitan districts during the winter months, yet only an extremely small proportion of the populace realizes their significance. In the immediate vicinity of the roosts the gathered thousands seldom fail to incite the latent instincts, so frequently present behind the shotgun, to kill for the mere sake of killing, regardless of whether the birds may be doing good or harm. The easy pot shot at hundreds of closely perched birds is a chance that few gunners seem able to resist. But the fact that these birds have maintained this interesting habit even in the face of constant persecution over a period of many years bids fair to insure its continuance as long as crows remain abundant.

Economically the roosting habit is of considerable importance, inasmuch as it results in the gathering of thousands of individuals of a species possessing some harmful traits. Fortunately the clans do not assemble for the purpose of feeding; but even as it is, large numbers of crows ofttimes forage together on comparatively small areas in the vicinity of roosts. Harm is then almost sure to be done to crops which may still be in the field. Under such circumstances vigorous and concerted action by all farmers in the vicinity appears to be the only recourse. A roost attacked for several successive nights by a number of gunners is almost certain to be deserted, and the occupants will move on. As an agency working toward the extensive distribution of noxious seeds the crow roost itself can not be regarded in the serious light in which some writers have portrayed it. Much greater harm would result if the multitudes of crows passed the night individually or in small flocks at various scattered places, as do so many other birds which feed extensively on the same seeds. All things considered, the habits of our crows during the colder months are largely neutral except in localities where in late autumn such crops as corn and sorghum may be subject to attack. The crow offsets these losses to a large extent, however, by its consumption of grasshoppers.

HOW ENGINEERING MAY HELP FARM LIFE.

By E. B. McCormick, *Chief, Division of Rural Engineering,
Office of Public Roads and Rural Engineering.*

INTRODUCTORY.

FARMING operations in the United States are being gradually put, either consciously or unconsciously, on a basis similar to that existing among manufacturing organizations.

In the day of "dollar land" and virgin soil the investment represented was so small that a farmer was securing a reasonable return on his capital and labor if he made no more than a comfortable living for himself and family. The richness of the soil, however, made it very probable that a return considerably in excess of this figure would be secured, even without the use of improved methods and equipment. But the present price of land is such that to secure a return on the capital value it is necessary not only to obtain and maintain the maximum output but to do so at a minimum cost. This problem, expressed in terms of the factory manager, is—

> to increase the quantity of production without decreasing quality, to reduce the shop cost per unit of product to the minimum, and to decrease the overhead to the lowest possible amount that will admit of efficiency of operation.

The production may be increased in quantity in one of several ways: First, by increasing the force of workmen and the working hours per day; second, by improved machinery and equipment; third, by rearrangement of plant to permit ease and rapidity of operation; fourth, by improving the working conditions to such an extent that a greater production per workman per day will be secured. Shop cost in most cases can be reduced only by securing an increased output per workman per day. In order to secure this result, it may and probably will be necessary to install some improved machinery and to better the working conditions. The overhead charges can be reduced only by a careful and accurate, though not necessarily intricate, system of cost accounting that will detect unnecessary and unprofitable operations, equipment, superintendence, and investments.

The first-mentioned method of increasing production—that of increasing the force employed and the working hours per day—was the one formerly in vogue in manufacturing plants. In most industries, happily, it is now relegated to the scrap heap, and revived only for occasional use when there is an unexpected temporary demand for increased production which can not be met in sufficient time by one of the other methods, and which is so temporary in its nature that it is unprofitable to make the necessary rearrangements to put one of the other methods in force.

As in the case of the manufacturer, so with the farmer, it is the other three methods of increasing production which are most vital, and it is here that the engineer can be of material assistance to the farmer. The economical and comprehensive use of machinery of various types; the arrangement and grouping of farm buildings and structures, as well as the construction of individual buildings; the development of natural resources for furnishing power, as a substitute for manual and animal labor now employed at considerable inconvenience and excessive overhead cost; these are among the various lines of activity in which the specialized knowledge and experience of the engineer may be highly useful in connection with farming operations. It must be clearly understood that this character of assistance does not in any way duplicate or antagonize regular farming operations, such as the character of crops to be grown, the method of tillage to be employed, and the fertilizer to be used, which lie within the province of the trained farmer or agricultural specialist.

Aside from the material phases of this engineering service, a consideration of first importance is that the engineer can be helpful in securing for the farmer those conveniences and comforts of home life which are now possessed by the city dweller.

MACHINERY.

Leaving out of consideration the business of truck farming and other special branches, it is necessary for the average farmer to till a considerable acreage if he is to secure more than a bare livelihood for himself and family. This can not be done profitably without the use of the requisite amount of suitable machinery. What will be the amount and character of machinery required will, of course, vary with the conditions. The readiness with which the farmer has grasped the possibilities of increased returns by extending his acreage and employing necessary machinery has led to the development in the United States of a manufacturing industry that is one of the largest in the country. Much of the product turned out by this industry is remarkable both for its effectiveness and its low cost to the consumer. As in any other industry, however, there is a certain percentage of the product that is of an inferior quality, built to sell rather than to use, and although it may in some cases be sold at a lower price than the well-built apparatus, it is, because of its inferiority, exorbitant in cost. Furthermore, a particular type of machinery may prove admirably adapted for certain operations in a given locality, but may not prove the most desirable for use under different conditions. While the types may be approximately the same, there may be certain radical differences in design or construction which render one machine better for certain conditions than others. To cull out the inferior machines and to perform the more difficult task of selecting from among the good ones those best adapted for any given purposes, requires a knowledge of machinery and engineering greater than that usually acquired without special training.

A concrete example of the decision a farmer is called upon to make in selecting machinery is shown when one considers the methods of rating horsepowers. The horsepower of a steam engine is stated in terms of the average steam pressure in the cylinder, the number of revolutions of the engine, the length of the stroke, and the piston area, the result being expressed as "indicated horsepower." This method of rating does not take into consideration the losses that occur between the cylinder and the belt wheel, and consequently a 10-horsepower steam engine will not deliver 10 horsepower to the belt wheel when running under normal conditions of steam pressure and speed. On the other hand, the gas engine is rated ordinarily in terms of the brake horsepower, which is the horsepower delivered to the belt. Owing to the fact, however, that a gas engine has one definite speed and definite horsepower at which it is most economical and which it can not exceed to any appreciable extent, it has been the policy of some gas-engine manufacturers to underrate the horsepower of the engine, thus leaving a margin of safety for overloading; other manufacturers of gas engines rate the horsepower at exactly what the brake test shows; and still others overrate the horsepower of the engine. It is therefore very difficult to select an engine of the desired capacity from the ratings of the manufacturers. Another point that enters in to add to the confusion is the fact that a steam engine responds very readily to overload conditions and may be called upon to perform as high as 50 per cent in excess of its rated capacity, while the gas engine does not possess this elasticity and can not be relied upon to perform work in excess of its normal horsepower.

When it comes to the selection of an engine to operate certain machines, or the selection of a machine of suitable size for an engine already in operation, the confusion becomes still greater, as there is even less uniformity in the method of rating horsepower required to operate such machines as feed grinders, ensilage cutters, pumps, etc. The figures published are likely to be those obtained either by estimation, calculation, or shop test, the latter method, of course, being more accurate; but even that does not take into consideration the conditions the machine will meet in the field. Other factors that the engineer will take into consideration in proportioning outfits are those of the probable losses occurring between the engine and the machine operated, such as belt slip, lack of alignment, etc., and the likelihood of the engine being called upon to perform for a short period work considerably in excess of that normally required of it.

Agricultural machinery has necessarily been developed from two standpoints: First, that of the farmer, to keep the cost down; second, that of the reputable manufacturer, to turn out the most efficient machine possible. These viewpoints are to a certain extent antagonistic; they should be reconciled with the one view of producing the most efficient machine possible at the lowest consistent price. The reasonableness of the price should be gauged, not by the first cost, but by the return on the investment, which perforce includes the amount of time during which the machinery lies idle. In establishing and maintaining such a standard the engineer can be of inestimable value through his work as a mediator between the farmer and the manufacturer. Certain standards may be established for output of the different machines, and the established price for such machines will then be that at which the manufacturer best equipped to make them can turn out the necessary number to meet the demand. Unless his price can be met by the other manufacturers they must either go out of business or rely for their trade on the uninformed farmer who by the purchase of these high-priced machines immediately becomes handicapped in his competition with his neighbors.

ARRANGEMENT OF FARM PLANT.

The modern manufacturing plant is so located, arranged, and constructed that the particular product it manufactures progresses from the raw material on through the different operations in a regular order. There is no doubling back upon itself during its progress, and every effort is made to secure convenience and rapidity in the process. No two plants, however, will be exactly alike, even though manufacturing the same product, because the factors of site, switching facilities, locality, nature of labor available, and source of power all enter in to modify the general design. It is possible in the case of every farmer so to locate the fields, roads, barns, sheds, houses, etc., that the operations on that farm will be performed with the maximum efficiency and with the least loss of motion. The differences in arrangement and layout between two farms turning out approximately the same product are likely to vary even more than in the case of two factories because of the wider probable range in natural conditions. This means that even greater study must be put on the plant arrangement of the farm than of the factory if maximum efficiency is to result. Admirable arrangements have been and may be made by men who, though not trained in engineering, possess naturally the qualifications of competent factory managers. Yet in general it is probable that far more efficient layouts will be made if supervised by men trained in factory engineering, who at the same time have learned the local conditions and the operations to be performed in each and every case, just as they would learn those conditions and processes in the case of any factory under their supervision.

The architectural engineer can bring to the aid of the farmer in the construction of farm buildings and structures the technical knowledge that will secure maximum space at minimum cost, combined with a result at once convenient and of pleasing appearance. This latter factor is one that is often overlooked, yet, in the opinion of the writer, is a very important one.

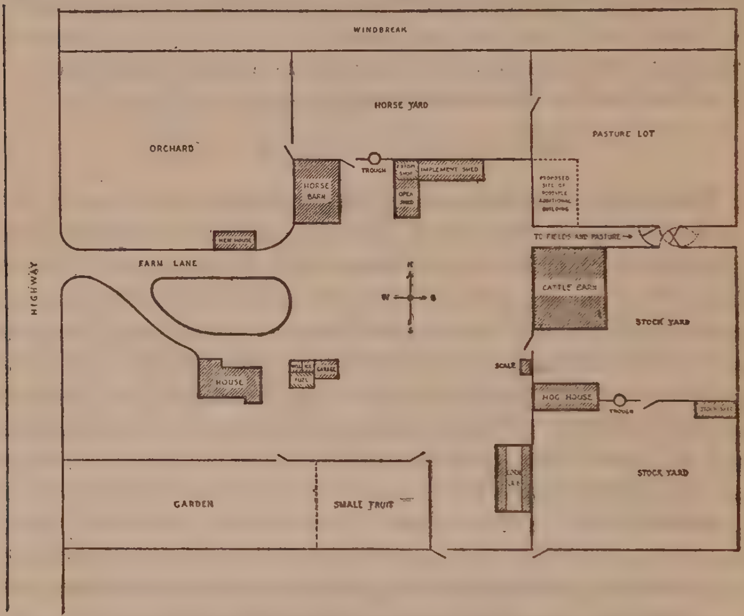

FIG. 2.—Layout of farm buildings designed to meet certain operations and conditions on a particular farm.

Figure 2 shows an actual layout of farm buildings designed to meet certain definite operations and conditions on a particular farm. An analysis of this plan shows the location of a house easily accessible to the main highway. The house being on the east side of a north-and-south highway, the interior arrangement is so planned that the disadvantage of a western exposure is overcome and the effect of a southern exposure is secured. This house is well separated from other farm buildings, but commands a view of all of them and is not so far away as to render the passing back and forth unnecessarily arduous.

A few of the points that are brought out by an inspection of this plan in connection with the arrangement of the farm buildings and the fields are:

(1) Vehicles and implements coming from the road go direct to the sheds without passing close to the house or other buildings, except the horse barn. In coming from the fields they may be taken direct to the sheds, and, without any doubling back, the horses pass into the stables or into the horse lot.

(2) The horse barn is equally accessible from the implement yard, the farm lane, or the horse lot.

(3) The shop is so located that the operations of horseshoeing or vehicle and implement repairing may be carried on either in the shop or immediately adjacent to it, without the necessity of bringing the work any appreciable distance or of requiring much traveling back and forth.

(4) The location of the farm office immediately over the shop gains all the advantages of a lookout tower, from the windows of which the owner or manager may command a view of practically the entire farm. It has the further advantage that on rainy days when he is most likely to be carrying on office work the other employees of the farm are probably engaged in work in or near the shop, and, therefore, come directly under his supervision.

(5) The location of the cattle barn, which is designed for feeding purposes only, is such that it is readily accessible from the farm lane, the feed lot, or the fields.

(6) The corn crib is so located that it serves as a portion of the fence for the hog lot, and requires the minimum handling of corn from the crib to the lot.

(7) The vegetable and flower gardens may be reached handily from the house, and yet are entirely distinct from other farm activities and well removed from the poultry house.

(8) That provision in this plan has been made for future growth is shown by the fact that a site has been set aside that will give a convenient location for additional buildings to house any of the activities of the farm.

(9) The buildings most necessary of access from the kitchen are located close to it in convenient order and connected by a protected passage. At the same time they may readily be reached from the other parts of the farm.

THE DEVELOPMENT OF POWER.

There are to-day on many farms streams that are capable of furnishing sufficient power for many of the operations of wood sawing, feed grinding, churning, washing, separation of milk, etc., as well as providing sufficient current to operate a number of lights and a few small appliances such as flatirons, motors for sewing machines, vacuum cleaners, ice-cream freezers, etc. On the other hand, as evidenced by the inquiries coming into the Office of Public Roads and Rural Engineering, there has been an attempt in many cases to make use of or develop the power of streams which are of insufficient capacity. In the aggregate, considerable sums have been spent in an attempt to develop these insufficient supplies. The problem of the development of these powers and the question as to whether a particular source of power is sufficient to warrant development is one that can be settled by the engineer only.

The arrangement of the farmhouses should provide for the greatest utility and at the same time include many of the comforts and conveniences in the way of light, ventilation, heating, and equipment for expediting cooking and housekeeping operations and reducing the drudgery thereof. This problem can best be solved by the architect who to his technical training has added a knowledge of the conditions to be met.

WATER SUPPLY AND SANITATION.

We are accustomed to think of the cool, shaded open well and the sparkling spring in some ravine as being the sources of drinking water that is far superior to any available to the city dweller. As a matter of fact the well curb may be lower than the surrounding ground, and the well may for years have been acting as a collector of germs of all kinds until even the bucket itself is lined with them. The spring may be and many times is merely the outlet of a drain from some field badly contaminated by sewage or other refuse, and the water from the spring may be loaded with germs, such as typhoid. A person drinking such water may, if the fortunate possessor of a strong constitution and under favorable conditions, maintain these germs within his system without fatal or even serious effects. It is a fact, however, that the per capita prevalence of typhoid and similar diseases is greater in suburban and rural communities than in the crowded cities, in spite of the slums existing in many of the latter. So well established is this fact that it is now not unusual to hear the expression "vacation typhoid," when speaking of a case existing in the fall or winter that is reasonably traceable to conditions existing in the locality where the patient spent his vacation.

In most localities in the United States it is easily possible to secure a reasonably copious supply of pure water, but the methods employed in one locality may not dō in another. The constructions to be employed in securing the supply and protecting it after it is secured are in the main simple if adapted to the conditions. In many cases, through lack of sufficient forethought or knowledge on the subject, the source of water supply is located at the most inconvenient point on the farm, because of the belief that water can be obtained more readily there than at any other point. In many cases such location is absolutely unnecessary. The engineer's knowledge may permit him to study the local information available on the subject of ground waters and locate the supply at a point which makes it most convenient to all operations of the farm.

In two typical cases now being worked out by the Office of Public Roads and Rural Engineering in adjacent localities, the conditions warrant in one case the use of a ram operated by the flow from an artesian well; in the other it has been decided that a gasoline engine and a deep-well pump will prove to be the best solution. In the one case an underground pressure tank can be used, located near the source of water supply, and furnishing water under pressure to all the buildings and feed lots; in the other case it has been about decided to use a combined system consisting of a pressure tank in the basement of the dwelling and a small storage tank located in one of the barns and supplying two or three buildings and feed lots. The points that have been considered in determining the type of installation to be employed are the operations carried on, the contour of the ground, the location of the water supply, the location of the present buildings, which was already fixed, and the probable location of additional buildings to be erected as needs arise, not neglecting, of course, the amount of money that could reasonably be spent on the installation without raising the permanent investment beyond a point where returns might be expected.

The engineer may not stop when he has located the source of supply and arranged to protect it from contamination; his next step is to arrange for the distribution of the water to the farmhouse and the other buildings of the plant. With a knowledge of plumbing appliances and methods possessed by a competent sanitary engineer, the water supply can be carried into the house and to various parts about the farm at a comparatively low cost. With the system correctly installed, the first cost may be saved many times over in the operation of the entire plant through reduced labor and the consequent increased time for other work, to say nothing of the added convenience and pleasure to be derived from such an installation.

Closely connected with the problem of water supply is that of sewage disposal. Formerly it was considered that but one of two methods was available for the disposal of human excreta—that of a community sewer or open privy vaults. To-day there are in use several methods lying between these two.

A vault may be used and rendered to a great extent sanitary. Cesspools under certain conditions may be advisable. A septic tank with some one of several forms of distribution and aeration may be found to fit the needs and be within reasonable limits of expenditure.

Even more than some of the other problems of rural engineering, that of sewage disposal is one whose solution is determined to a great extent by the local conditions. An installation that has proven satisfactory in some cases has turned out to be a complete or partial failure when applied under other circumstances. In order so to design and locate a disposal plant that contamination is avoided, not only on the premises of the owner but on those of his neighbors, requires the services of a man who not only has the necessary scientific training, but who can draw from his own experience and from that of others.

FUNDAMENTAL CONSIDERATIONS.

In figuring on the installation of what might be called the producing plant of the farm, which includes barns, stables, sheds, shops, fields, etc., the element of return on investment must be considered. While in the design of such a plant there should be an effort made to secure pleasing effects, this is not the essential feature, the factor of utility being predominant. To build a barn unduly expensive or larger than is likely to be needed within a reasonable length of time is poor business management. In the design and construction of the farmhouse, however, the question of utility alone should not be the determining factor. The first thought should be the making of a home. The amount of money to be invested in the building of the home should not be determined by its relation in size to the balance of the plant, nor by the amount that is necessary merely to provide a shelter, but the amount to be invested should be that which the owner may reasonably afford without financially crippling himself too severely. The average city dweller in buying a house for a home does not proceed solely on the basis of what he can expect to secure in case it is ever desirable to place the house on the market. He is not likely to consider the purchase of a home as a financial investment, but as a social one, which will enable him to secure for his family the comforts and conveniences that he could not secure in a rented house, and to have for his family a genuine home, a genuine home life. If he is able when the time arrives to dispose of his property to financial advantage, well and good; if not, he considers, and properly so, that he has made a good investment from the social side.

There is no panacea that will cure the yearning for city life evidenced by the country boys and girls of to-day, but there are certain conditions which if established will add materially to the attractiveness of life in the country, and should therefore prevent them from flocking to the cities merely to avoid life on the farm. It is not to be expected that every person raised on a farm will desire to follow farming as a life work, nor is it necessarily desirable that they should do so. Many of the boys will feel a calling to one or another of the professions, and it is probable that if allowed to follow their bent they will be far more successful and contented than if overpersuaded to stay with the farm. The problem is not to force the boy or girl to remain on the farm, but to assist them in every way in making an intelligent choice. Their choice can not possibly be intelligent unless they are familiar with farm life under its best conditions. The architect and the engineer can assist in bringing about these conditions much more rapidly and effectively than could possibly be done by persons untrained in these professions, however enthusiastically they might work for the desired ends.

It is true that in some cases engineers have failed to produce the desired results in connection with farm operations. This failure may readily be traced to the fact that the attempt was made by engineers who had not become thoroughly acquainted with the conditions and necessities of the field in which they were working. The same failures have been obtained by others as well as engineers when working in any unknown field. In the past it was difficult in many cases to secure an engineer who, in addition to his technical training, was possessed of the necessary knowledge of farm conditions to enable him to apply engineering principles thereto. At the present time, however, the demand for men of this kind is being met in part by young men who are being turned out from land-grant colleges, trained either in agricultural engineering courses or in mechanical, civil, or electrical engineering courses in which the application of engineering principles to farm life has been emphasized. This supply of available engineers will undoubtedly increase for several years to come, and these men will most certainly leave an impress on the farming life of this country which will tend to raise the standards of living as well as the standards of production to an even higher extent than they now are.

SOME OUTSTANDING FACTORS IN PROFITABLE FARMING.

By J. S. Cates,

Agriculturist, Office of Farm Management.

THE principles which underlie profitable farming are not unlike those which underlie the profitable conduct of any business. The difference is merely in the application. The one fundamental principle underlying all successful business undertakings is that the cost must be less than the selling price. In the operation of this principle, agriculture is no exception. Farming, however, is such a complex business, and the different enterprises making up the farm unit are so intricately related, that it is often well-nigh impossible to determine the true cost or the true selling price of a farm product. However, the relation of any factor in farming to the profits of the farm as a whole, by the study of a large group of farms, can be fairly accurately determined. This relation of the individual enterprise to the profits of the whole is perhaps the best guide to successful farming and to an understanding of the principles upon which good farm organization is based.

One of the first and most important factors having to do with profitable farming, as in all other lines of business, is the size of the enterprise. There are several measures of size of a farming enterprise. Perhaps in operations of the same general type, the area of the farm furnishes the most significant measure of size. Of course, size in acres can not be used in comparing a truck farm or a farm of any intensive type with a general farm. Despite the much-talked-of idea of "a little farm well tilled," actual records from thousands of farms covering pretty well the whole United States go to show that little farms do not often make big profits, and that as a rule the profits from farming vary directly with the size of the business. It might, however, be pointed out in this connection that the opportunities for loss vary also in the same way.

In a study of the agriculture of Chester County, Pa., 115 farms of the group of 60 acres and under, averaging 40 acres, only 8 per cent made labor incomes[1] of $1,000 or more, and the average for the group of this size was $404. Of the group ranging in size from 161 to 393 acres, averaging 203 acres, 68 per cent made $1,000 or more, the average for the whole group being $1,575.

In a similar study made in the extensive farm region of the upper Mississippi Valley States, the 160-acre farm groups gave an income over five times that of the 40-acre group. Results closely paralleling these are secured wherever such studies are made of comparable types of farming. It is not surprising that this is true when we consider some of the handicaps under which the small farm is operated. For instance, in the group of large general farms in the Chester County area, the value of machinery equipment per acre of crops was only about one-half that of the small-farm group and the crop acres per horse was nearly double, as was also the crop acres per man. Furthermore, a small farm is rarely adequately supplied with equipment to enable the farmer to properly do his work.

A recent study of machinery equipment on over 1,100 farms in western New York showed that when, for instance, a sulky plow was used to cover 15 acres annually the cost per day of use for the machine alone was 83 cents. When this same plow was used to cover 55 acres annually the cost was reduced to 57 cents per day. A grain drill when used to cover 20 acres annually cost per day used, $2.97; when used to cover 117 acres annually the cost per day dropped to $1.04. A grain binder, when used to cover 15 acres per year, cost per day used the surprising sum of $8.15; when used to cover 85 acres per year the cost per day used was $2.41.

Another striking disadvantage of a small farm is that the restricted acreage does not permit of a sufficient diversification in the farm enterprises to furnish a good, even, all-the-year-round employment of labor. As a result, the labor employed by the year is often idle for long periods. Whether this labor be hired, or be the services of the farmer himself and his family, the results are the same. Rather than be idle for a long period, this labor might well be employed in some industry which yields even but slight profit. In the larger size farms this factor can easily be provided for. The minimum size of a farm for efficiency should be such as will furnish opportunity for adequate employment for labor, machinery, equipment, and work stock.

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[1] Labor income: Roughly speaking, what a farmer earns over what the money he has tied up in his farm would earn for him if put out at interest. Labor income is found by subtracting a fair rate of interest on investment from the total annual farm income, which includes all receipts except those items which the farm contributes directly to the family living.

It is not always possible for a farmer to enlarge his business by investing more capital until it shall have reached the optimum size. He can, however, quite often rent additional land. In many parts of the United States the figure paid for land rental, either in cash or in part of the crops, amounts to considerably less than a normal interest charge. A study of three groups of tenant farms located in Indiana, Illinois, and Iowa, showed that the tenants paid on the average a rental equivalent to only 3.5 per cent of the value of the farm. A farmer with restricted means, therefore, under such circumstances need not worry about his inability to purchase when he can rent more cheaply than he can own.

The diversity of enterprises making up the farm unit shows an important relation to profit. The successful farm usually has from three to five important sources of income. There are some extraordinary circumstances under which a farmer may find it more profitable to raise only a single crop, and even to buy feed to supply his live stock, than to engage in diversified farming. These conditions are exceptional, however, and such a farm is always subject to disaster through the failure of that single crop, as well as through failure of market conditions. And, further, no single cropping system offers an opportunity for continuous employment throughout the year, while with a diversified agriculture the leaks caused by idle seasons can be largely overcome.

Live stock on the farm usually helps greatly in furnishing continuous employment. Live stock is primarily a method the farmer employs of marketing his produce, and the live-stock yield must be equivalent to the market price of the feed or a loss is occasioned; but if live stock yields even a small margin over current prices of feed, yet the labor employed in caring for the stock would be otherwise idle, then the industry becomes highly desirable and contributes to the profit of the farm.

The factor of profitable farming which has probably heretofore received more attention than any other has been what might be termed efficiency, that is, the crop yield and production per animal. As a rule, crop yields for a community are considerably below what would be the most profitable, and production per animal is decidedly below what has been shown to be the most profitable. In the case of crop yields, however, investigations have shown that the biggest yield is not, by any means, always the most profitable yield. As a rule, the most profitable yield of crops for a community ranges from 15 to 30 per cent above the average of the good farmers of that community. If the yield rises much above this figure, the profits of the farmer's business are usually found to decrease. It is possible to suffer from too big crop yields. Quite a few American farmers have reached this point. The optimum yield for greatest profit, of course, varies widely with different soils and economic conditions.

Studies of one large group of Pennsylvania farms showed, when the yield of crops reached a point about 35 per cent above the average for the region, that there was a sharp decrease in profits. The price of products as related to the relative costs of yields of different magnitudes seems to be the governing factor in determining the most profitable yield. Survey studies indicate that very few farmers are producing as large crop yields as existing economic conditions warrant. Farm practice, in the aggregate, always responds to changed prices of commodities, but this response by the individual farmer, in the majority of cases, is made far more slowly than the greatest profit would indicate.

To illustrate how the yield is determined by prevailing price of a product, the case of corn in North Carolina may be cited. In the decade previous to the last, the average price per bushel of corn in that State was about 55 cents. The yield per acre was around 13 bushels. During the past decade the price has ranged around 85 cents a bushel, and the yield has increased to about 20 bushels per acre. The explanation of this probably lies in the fact that under the higher prevailing price it became profitable to use more fertilizer and legumes and give better tillage to the crop than under the low scale of prices. No doubt the average yield is yet far below what would be the most profitable under existing conditions.

Survey studies have never disclosed, however, a group of farms on which the yield per cow had reached a point above which profit decreased. There does seem to be a point in yield per cow above which increased yield is not accompanied by much further economy of feed. Recent studies of feed cost as related to milk yield, made on four farms located respectively in Michigan, Wisconsin, Pennsylvania, and North Carolina, running for five years and involving careful, complete yearly records of 443 cow-years, indicate that this point is reached at a yield of between 6,000 and 7,000 pounds of milk.

Relation of yield and feed cost, per cow, to feed cost per 100 pounds of milk produced.[1]

Pounds of milk	Number of cows.	Average annual yield (pounds).	Feed cost.	
			Per cow, yearly.	Per 100 pounds milk.
3,000 and under	16	2,349	$43.93	$1.87
3,001 to 4,000	33	3,648	49.47	1.36
4,001 to 5,000	78	4,596	55.00	1.20
5,001 to 6,000	111	5,450	59.91	1.10
6,001 to 7,000	109	6,445	62.85	.98
7,001 to 8,000	60	7,514	70.38	.94
8,001 and over	36	9,049	80.45	.89

[1] From records covering five years made on four farms located respectively in Michigan, Wisconsin, Pennsylvania, and North Carolina.

The accompanying table and graph (fig. 3), both based on these records, show that the cost of feed per 100 pounds of milk decreases rapidly up until about 6,000 pounds yield, after which the decline in cost is very slight. The lesson from this study is that it is of much greater importance to increase the milk yield up to between 6,000 and 7,000 pounds than it is to attempt to get the yield above this figure, as far as the economy of the use of feed is concerned. It is easier to increase the quantity of milk when it is low than when it is high. It is also easier to raise low crop yields than it is to raise already high ones. Furthermore, in both cases raising a low yield is the most profitable thing to do. In dairying, a high standard of production per cow is usually the keynote of success. According to the recent Pennsylvania study of 289 dairy farms, 48 of these farms showed a yield per cow of less than $50. The labor income of these farms was 45 per cent below the general average. Twenty-eight farmers of the group had incomes per cow of more than $120, and their labor income was 75 per cent above the average.

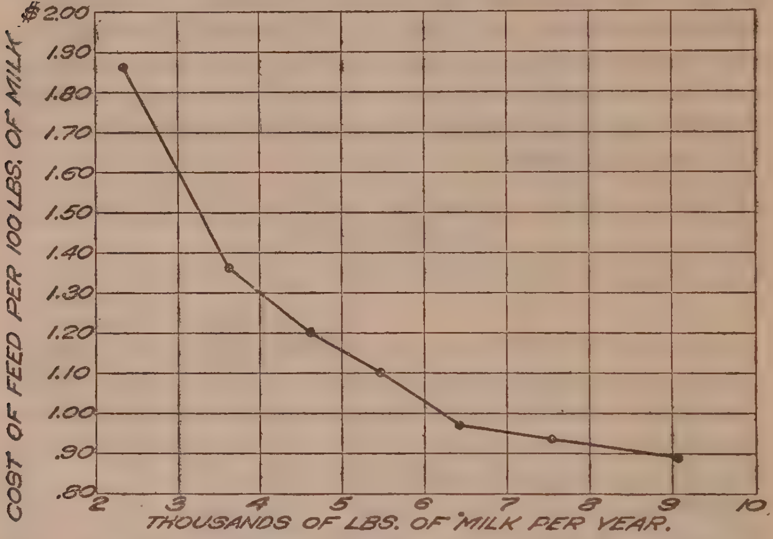


FIG. 3.—Relation of yield per cow to feed cost of milk. (Chart based on data in table on p. 117.)

Perhaps the most conspicuous cause of success in farming is prompt and fitting change in type of farming in response to economic pressure, as indicated by the market price of products as related to cost. The American farmers who are most successful usually sense the operation of economic forces long ahead of their neighbors. A large number of farmers change an old-established system only when forced by dire necessity. Not only is there the greatest opportunity to any individual farmer through quickly modifying his organization in response to changed markets, but such readjustment is of great value to the whole community, for such action in time becomes corrective of the changed condition from which it sprang. Let us assume, for instance, that there is a community engaged largely in live-stock production, and that through some cause feed prices advance to such a point that there is more money in selling the raw product than in feeding. Under such conditions a large number of farseeing farmers will quickly curtail their live-stock industry and become sellers of raw feed products. This, in turn, has a tendency to reduce feed prices and to increase the price of live-stock products, thus bringing about the old balance.

The farming business which is of efficient size, and which is made up of diverse units, put together in such a way as to operate smoothly and well, with full employment of both labor and horse and machinery equipment, provided supervision is adequate and the enterprises making up the farm are selected wisely and are efficient, complies closely with the outstanding factors of profit.

The ideas concerning successful farming presented in the preceding pages can not be put into practice without capital. A vast number of American farmers are making their homes on impoverished land and are practically without working capital. The outstanding factors in profitable farming, in such cases, consist in a study of what to do with what they already have. The factors of profit must be toned down to terms of expediency under existing conditions.

It is vastly important, from a national welfare standpoint, to point out means whereby the now well-to-do farmer can increase his earnings. It is absolutely essential to good citizenship, however, that the man without capital, living on an impoverished farm, be shown the way to make a reasonable competence sufficient to provide for the education of his children. The only opportunity for the farmer located on poor land, having no capital, is to substitute his time and labor for capital. His first problem is to develop soil fertility. The only known, broadly applicable method of making poor land rich without extensive capital is through legumes and sod crops. Many farmers are not able to buy legume seed. In practically all regions, however, some class of legume seed can be home grown, and from the very small quantity required to seed say 1 acre, the poor-land farmer can, in a short time, be producing enough seed to supply his whole needs. He can, in many cases, with great profit have a surplus for sale.

In the Southern States, vetch, crimson clover, cowpeas, and soy beans all seed heavily. In the more northern States all of these crops, with the exception of crimson clover, do well. The question of growing legume seed at home for sale and for planting to improve the soil is the big outstanding opportunity for the poor man on poor land to develop a profitable farming system, and this opportunity can not be too strongly emphasized.

POINTERS ON MARKETING WOODLOT PRODUCTS.

By Stanley L. Wolfe, *Forest Examiner, Forest Service.*

MAXIMUM WOODLOT RETURNS.

THE question of securing the greatest cash returns from the woodlot is one of finding the market in which the demand for each kind of woodlot product is greatest and the price highest. The best available market is not necessarily the first that presents itself. A farmer, for example, might sell his timber to a local sawmill for $10 a thousand board feet in the log delivered, unaware that in a near-by city there is a veneer mill which will give him $24 a thousand feet for the same material. Or again, in the same woodlot there may be some fine hickory trees. From the sawmill man the owner could get for these only the same price as for the other timber, because hickory, as lumber, is not especially valuable. But if there was a handle factory within shipping distance, he could probably sell his hickory there for between $20 and $30 a thousand. Or still again, there might be some black walnut trees for which a firearms manufacturer would pay a very high price, enough appreciably to raise the profit on the whole transaction. Thus a study of the material available will often lead to greater profits. (Pl. IV, fig. 1.)

WHAT DOES THE WOODLOT CONTAIN?

The woodlot owner usually knows what kind of trees he has, but he is seldom able to tell offhand how many of each kind there are, or how many cords or thousand board feet of material can be got out of them. Yet in trying to make a sale, the first question he is apt to be asked is, "How much have you?" Unless he has gone over the tract, or had it gone over, he is naturally at a loss for definite figures. He may have gone over it superficially, and will answer so many trees, or perhaps so many of each kind. The manufacturer will then most likely say, "We buy our material measured in cords or thousand board feet. How many cords or thousand board feet have you?" This time, of course, the owner will be entirely at a loss for an answer, and the chance for a good sale may slip by.

Another thing the owner should know at the start is for what purpose his timber is best suited. If it is all of one size it may be good for only a single product, such as railroad ties. On the other hand, if there are large trees and small trees and medium-size trees, there will be possibly the most money in selling each size of tree for a different product, the particular one for which it is best adapted. White oak will serve as an example. Sound white oak trees under 12 inches in diameter should make railroad ties; those from 12 to 18 inches, saw logs; and those over 18 inches, veneer. (Pl. IV, fig. 2; Pl. VI.) Soundness, of course, will have to be taken into account. Defective timber is not suitable for products requiring high-grade material. "Cat faces" on the trunk near the ground, the result of fire having at some time run through the woods and burnt the bark, indicate generally that a tree is hollow or rotten inside. White oak trees over 18 inches in diameter that show cat faces will probably not yield veneer, but only lumber, and perhaps a poor grade of that.

The first thing to do, therefore, is to find out how much timber of each kind the woodlot contains, what products it will yield, and what is its general condition and quality. The owner can usually do this himself; if he can, it of course means so much money saved. In States having organized forest departments the State forester usually gives advice on such matters, and may even assign one of his assistants to estimate the timber in the woodlot, though such an assignment can not be counted upon. If the woodlot is small it will be best to measure each tree separately. Diameters should be measured at about 4½ feet above the ground with calipers made for the purpose. Heights should be carefully estimated, or measured with some sort of height instrument, to the first large limbs. The data should be recorded on a tally sheet (no particular form of sheet is required) by species, diameter, and height. When the entire woodlot has been gone over it will be possible to divide the trees into diameter classes; for example, 8 to 12 inches, 12 to 18 inches, and 18 inches and over. As a general rule, trees from 8 to 12 inches in diameter will make ties; those from 12 to 18 inches, poles or piling; and those 18 inches and over, lumber or veneer. Knowing the diameter and height, the amount of timber in board feet in each tree can be found by the use of volume tables. General volume tables are included in Farmers' Bulletin 715, "Measuring and Marketing Woodlot Products." Other tables applicable to certain individual species may be had from the Forest Service. The quantity of cordwood a tract will yield can hardly be estimated by an inexperienced person, and this is true also of such products as pulpwood, tan bark, and the like. Sales of such material will usually have to be made on the basis of actual cut.

If the woodlot is large, it will, of course, seldom be possible to measure each tree separately. The thing to do in such cases is to lay out sample plots of a quarter or half acre each, and measure every tree on each plot in the same way as when the whole tract is covered. Then, in order to get the average stand on an acre, divide the total stand on all the plots by the number of acres in the plots. Multiply this by the number of acres in the tract to get the total stand. The plots, which ought to include at least 10 per cent of the total area, should be laid out not only in the best, but also in the poorest and in the medium timber, with the aim of securing figures of stand which will be representative of the tract as a whole.

Another method is to measure every tree on parallel strips, 66 feet wide, running through the tract. Every 660 feet in length of such strips comprises an acre. Averaging all the acres comprised in the strips, and multiplying by the total acreage of the tract, gives the total stand, as in the sample plot method. Like the plots, the strips should include at least 10 per cent of the woodlot. The strip method is perhaps the better of the two, since it makes it certain that the poorest as well as the best timber will be taken into account.

Whatever the method of estimating, proper allowance must be made for defective timber. To do this accurately requires some experience, but for all practical purposes in the woodlot the following method will suffice: Dead trees, except those killed by fire or other outside agencies, are apt to be very defective, and should be culled. Fire or insect-killed timber, if it has not deteriorated, can often be utilized for the same products as live timber; this can be determined only by an examination. The utilization of blight-killed chestnut is discussed in Farmers' Bulletin 582, "Uses of Chestnut Timber Killed by the Bark Disease." Trees which are dead in the tops should be heavily culled, and those which show defects in the butt should be culled according to the extent of the damage.

When the tract is exceptionally large, it may pay to employ a professional "cruiser" to estimate the timber, provided his services can be secured at a reasonable price. If one is employed, however, it is well to remember that he has probably been accustomed to estimating timber on a large scale, in doing which it is the custom to be conservative, so that his estimate of the smaller tract is likely to give a figure somewhat less than the actual stand.

FINDING A BUYER.

Once a woodlot owner knows the kind, amount, and quality of his timber, the next step is to find someone who will buy what he has to sell. It is easy enough, of course, to get in touch with local wood-using concerns; a personal visit will accomplish the purpose. But if the owner depends altogether upon local industries to take up his product he is likely to find his market extremely limited. Some products, such as crossties and fuel wood, have to be sold locally; it would not pay to transport them far. But other products, among them tan bark, can be shipped 150 miles, and still others, like walnut timber for gunstocks, can be shipped almost any distance. It is often advantageous, then, to procure lists of wood-using firms in his county, in his State, and even in neighboring States, as a basis for finding the best market for the different products of his woodlot. The Forest Service has compiled such lists for a number of States, and will be glad to tell applicants how they can be secured.

Railroads are the largest purchasers of crossties. Any station agent will furnish information concerning specifications and the prices paid by his company. Ties should be sold, whenever possible, to the nearest railroad, for it is usually impracticable to ship them anywhere by rail on account of the high freight rate. Electric railways in cities and towns also use ties, but unless the distance to town is short it will not pay to ship them. If such a market is available, specifications and prices can be obtained from the general offices of the company. Electric interurban lines offer the same opportunity for disposing of ties as do the steam roads.

Telegraph and telephone lines are always in the market for poles. Most of them have branch offices in towns and cities, where prices and specifications can be obtained. If not, such information can always be had from the main office of the company. Electric power and electric street-railway companies also use poles. This offers one of the best opportunities for obtaining a good profit from the woodlot, provided the timber is of the right size and quality. Pole specifications usually classify the material by 5-foot lengths, beginning at 20 feet and running up to 60 feet, with a diameter at the top end of 7 inches in the smallest poles and correspondingly larger diameters for the longer ones. Poles of other sizes are sometimes purchased, however, for special purposes.

Piling is used for the foundation of quays, wharves, retaining walls, bridges, and railroads in swampy country. The market is not very extensive, but railroads, large construction firms, and docking companies purchase considerable quantities. Piling timbers must be straight and long, and bring good prices. If there are any pile users in the vicinity, it will pay to dispose of some of the material in the woodlot for the purpose. Lists of users can be obtained from the Forest Service. Mines are large users of timber, and if the woodlot is in a mining district, it would be well to look into this market.

Sawmills, veneer mills, and fruit and vegetable package factories offer a market for the particular kinds and quality of woods they handle. These industries buy all their material in log form, an advantage to the woodlot owner in that he does not have to engage in any manufacturing operation himself; all he need do is to cut and deliver his timber in the rough at the mill (Pl. IV, fig. 2). Veneer logs must be of good quality and size, but selected stock brings a high price. If there is a veneer mill within shipping distance, the woodlot owner with logs to sell should get in touch with it. Slack cooperage, tight cooperage, paper pulp, wood distillation, tannin extract, excelsior, and handle establishments take their raw material in the form of bolts, billets, or cordwood, all measured by the stacked cord (Pls. V, VI, and VII). Such products are easily manufactured and handled, and the market is usually stable. One or more such industries are fairly certain to be located in almost every community; lists can be obtained from the Forest Service. Tanning-extract plants take the bark of chestnut oak, hemlock, white oak, and black oak, and often pay well for it. Bark is measured by the cord or ton, a cord of 160 cubic feet weighing approximately 1 ton. Furniture and chair factories pay a good price for their material, but they require squares or other special forms which must be manufactured by the woodlot owner. The Forest Service has prepared bulletins on the wood-using industries of a number of States, which tell the uses to which various woods are put and the quantity of each kind used annually for each purpose. They also contain directories of wood-using firms arranged according to the products they manufacture. A list of these bulletins and information as to how to procure them may be had upon application to the Forest Service.

Correspondence with possible buyers is a simple matter. They should be told how much and what kind of wood is for sale, and asked for information as to specifications and prices. To save himself trouble, the woodlot owner should ask for prices f. o. b. shipping point. If, in reply, the manufacturer quotes prices f. o. b. mill, the woodlot owner will have to consider the cost of shipping his material. Rates can be obtained from the railroad freight agent at the nearest station.

WAYS OF SELLING WOODLOT PRODUCTS.

The way in which woodlot products are sold may have a good deal to do with the profit an owner gets from his tract. There are four ways of selling: (1) by scale measurement of rough products, using the different log, cord, and rick scales; (2) by the piece, for such products as ties and poles; (3) by the boundary, for a lump sum; and (4) by lumber scale of sawed products.

Selling by the log or piece is the simplest method, and the one that most farmers are probably in the best position to follow. It does not require much technical knowledge of scaling and the like, or great attention to details. Ties, poles, piling, etc., are always sold by the piece. It is a simple method; the important things to know are the different grades of each product and their relative value. Fire wood, pulp wood, and excelsior wood are sold either by the cord or rick. This, too, is a comparatively simple method of marketing, and in small timber it is better than selling log scale, on account of the way most log rules underestimate the contents of small logs. To be sure of selling profitably by the boundary for a lump sum, the wood-lot owner would need to make a very careful estimate of the amount and value of his timber. Outside of this, the method gives the seller the least trouble of any, unless the buyer should make conditions in regard to the number, kind, and size of trees to be cut, in which case a good deal of supervision on the part of the owner would be necessary. Taking everything into account, sale by scale measurement or by the piece is probably better.

So far as gross returns go, the owner could probably secure the most by disposing of his material in the form of lumber, or of squares or other special forms demanded by the secondary wood-using industries, either sawing out the products himself or having the work done by a portable mill. This would be complicated, however, by such matters as cutting specifications, inspection, seasoning of the products, and accumulation of waste. The owner would also need to know something about grading rules and milling methods. On the other hand, he need not make an accurate estimate of his standing timber, and he would perhaps be able to utilize common and cull logs which he could not haul out of the tract at a profit. The lower grades of lumber he could use on the farm or dispose of locally. Ordinarily, however, manufacturing lumber and special forms would not be as advisable as disposing of his products in the rough, unless there was a portable sawmill operating in his neighborhood. In the latter case the production of sawed material might be warranted. The milling could be done by contract, but the owner should attend to the logging himself.

He could turn out shipping lumber or else fill special orders from dealers in hickory whiffletree squares, or handle stock, oak felloe stock, tight cooperage stock, or car and bridge timbers, ash baseball bat or long handle stock, dogwood and persimmon shuttle blocks, cedar squares and posts, and locust insulator pins.

PLAN OF UTILIZATION AND COST KEEPING.

In marketing his woodlot, the owner should have a plan to go by and an estimate of the cost of doing the work. It ought to be a simple matter to make a working plan. All that needs to be shown is how much of each product the woodlot contains, to whom each product is to be sold, the specifications to which it is to be cut, the price to be received, and the cost of cutting and marketing it. With such information systematically arranged, the owner knows just what he intends to do and what profit he ought to make. The simplest form of plan is merely a tabular statement of the data. Another and perhaps better scheme is to keep the data for each class of material on separate cards. This is compact and easily referred to.

To figure the cost of marketing is also a simple matter. If the owner does his own cutting and hauling, the cost will be merely a charge for teams and for the labor of the owner and any helpers he may employ. If a number of different products are turned out, it would be well to determine the cost of each. With lumber and other sawed stuff, milling costs will have to be added. No elaborate method of finding costs is necessary. The more simple the method, the less will be the chance of error. If the cutting and hauling are done by an outside party, the contract price will, naturally, determine the costs.

WHEN TO CUT THE TIMBER.

Unless the products have to be peeled of bark, the best time to cut timber in the woodlot is in the winter months. This also happens to be the season when other work on the farm is slack and the woodlot owner is in the best position to get out his material. Hauling is easiest in winter wher-

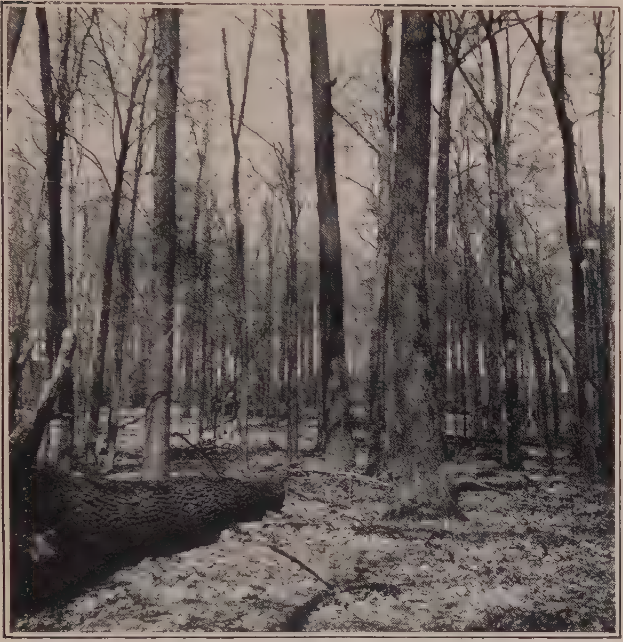


FIG. 1.—A WOODLOT CONTAINING MUCH MERCHANTABLE MATERIAL.

The fallen white-ash log, if marketed, would have brought a good price.

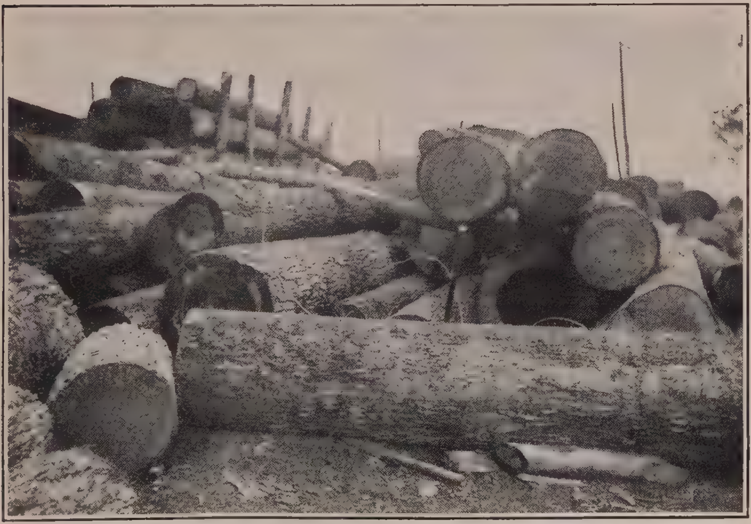


FIG. 2.—VENEER LOGS BRING GOOD PRICES.

The best timber in the woodlot can probably be used for this purpose if there is a veneer mill within shipping distance. Veneer logs should be sound, of good quality, and at least 18 inches in diameter.

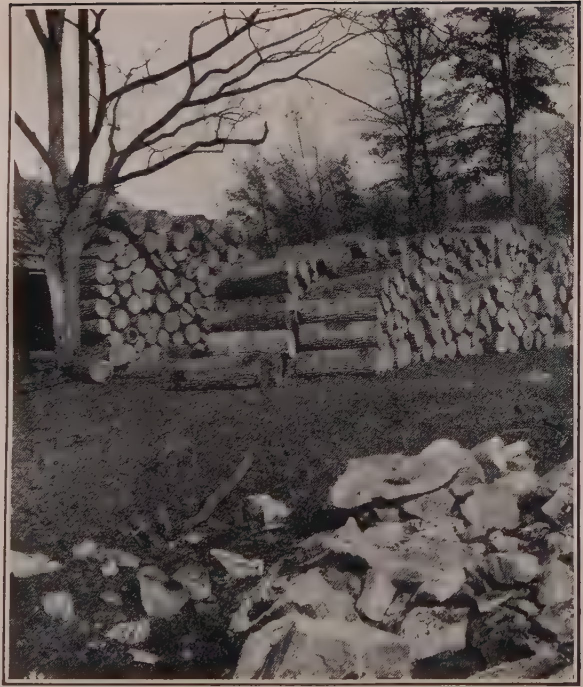


FIG. 1.—STAVE BOLTS FOR SLACK COOPERAGE.

An ordinary woodlot should yield considerable of such material.

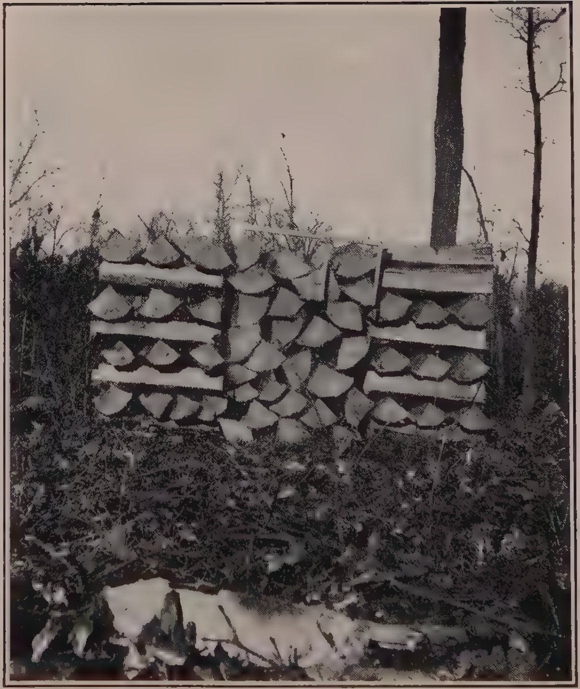
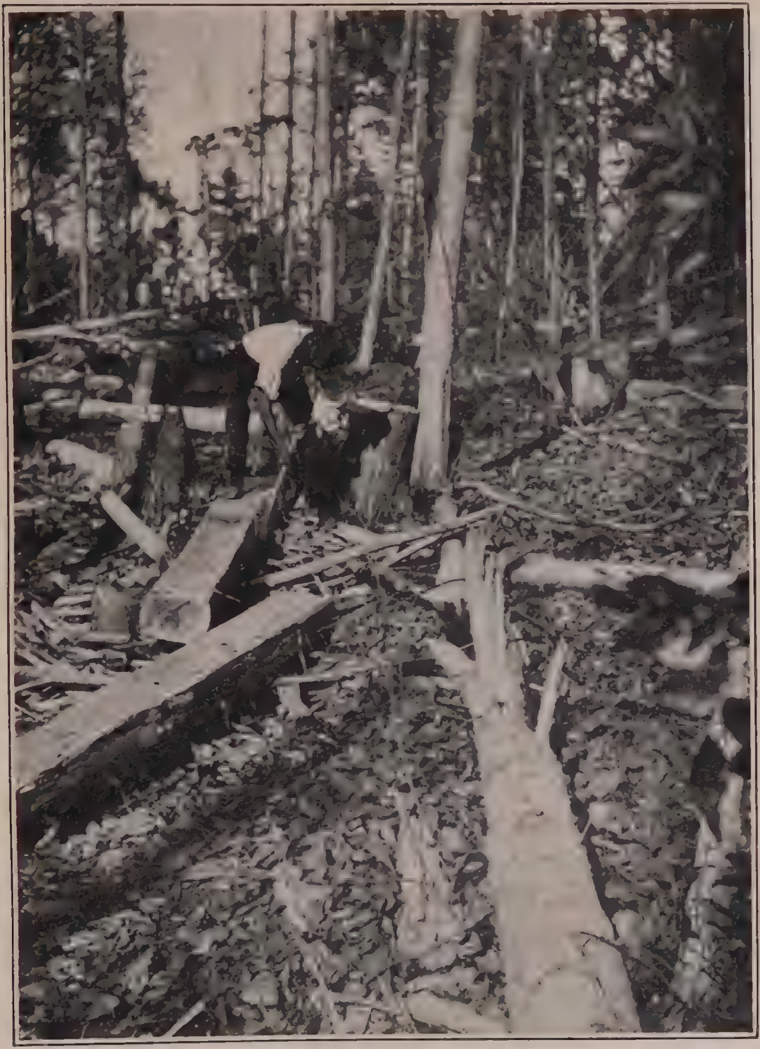


FIG. 2.—WHITE OAK STAVE BOLTS FOR TIGHT COOPERAGE PILED TO ALLOW FREE CIRCULATION OF AIR.



MAKING A HEWED RAILROAD TIE.

The average woodlot will yield many of these. They bring all the way from 35 to 75 cents delivered at the nearest railroad right of way.

PULPWOOD BOLTS CAN SOMETIMES BE CUT FROM THE WOODLOT.

The picture gives an idea of the size of this kind of material.

ever there is snow on the ground. Winter-cut timber seasons slowly and evenly, and by the time the warm weather comes is thoroughly air-dried. Round timbers, when cut in warm weather and allowed to remain in the woods, are subject to attack by insects and fungi. Products which must be peeled, such as ties, poles, and tanbark, should be cut in spring, when the bark peels most easily. Hardwoods which reproduce by sprouts must be cut in winter if the resultant coppice growth is to have the best chance to develop into a new stand. When such trees are cut in the summer or early fall, the sprouts start immediately and are not hardy enough by the time winter sets in to stand the cold. Veneer logs which must be delivered at the mill in a green condition can be cut in any season of the year, provided they are delivered as soon as cut; and the same is true of pulpwood and tannin-extract wood.

There are other points in connection with marketing woodlot products which might be touched upon, but those discussed here are the main ones. The really necessary steps are to find what the woodlot contains, and then, through the medium of a list of wood-using industries within shipping distance, to find a purchaser for the various classes of timber on the tract, delivering the material in the forms called for. If the woodlot owner will devote the same thought and care to marketing his timber as he does to marketing other farm crops, he will be more than likely to find that this necessary part of the farm, which now too often brings in no revenue at all, can be put upon a sound paying basis.

STATE WOOD-USING INDUSTRY REPORTS.

The Forest Service has completed studies of the wood-using industries in a number of States, the results of which have been printed by the individual States or in lumber trade journals. The reports at present available are listed on page 130, and may be secured from the cooperator whose address is given. In ordering those for which there is no charge, postage should accompany the application.

State.	Cooperator.	Address.	Price.
Alabama	Lumber Trade Journal	New Orleans, La	$0.25
Arkansas	Superintendent of Documents, Government Printing Office.	Washington, D. C	.05
Arkansas	Separate Directory of Wood-using Plants, Lumber Trade Journal.	New Orleans, La	
California	G. M. Homans, State forester	Sacramento, Cal	
Connecticut	W. O. Filley, State forester	New Haven, Conn	
Florida	W. A. McRae, commissioner of agriculture.	Tallahassee, Fla	
Georgia	Lumber Trade Journal	New Orleans, La	
Illinois	J. C. Blair, University of Illinois	Urbana, Ill	
Indiana	Hardwood Record	Chicago, Ill	
Maine	State forest commissioner	Augusta, Me	
Michigan	Public domain commission	Lansing, Mich	
Mississippi	Lumber Trade Journal	New Orleans, La	.25
Missouri	St. Louis Lumberman	St. Louis, Mo	.10
New Hampshire	E. A. Hirst, State forester	Concord, N. H	.25
New Jersey	Alfred Gaskill, State forester	Trenton, N. J	
New York	State College of Forestry	Syracuse, N. Y	
North Carolina	M. S. Holmes, State forester	Chapel Hill, N. C	
Ohio	Edmund Secrest, State forester	Wooster, Ohio	
Pennsylvania	R. S. Conklin, commissioner of forestry	Harrisburg, Pa	
South Carolina	E. J. Watson, commissioner of agriculture.	Columbia, S. C	
Tennessee	Southern Lumberman	Nashville, Tenn	
Texas	Lumber Trade Journal	New Orleans, La	.25
Vermont	A. F. Hawes, State forester	Burlington, Vt	
Virginia	G. W. Koiner, commissioner of agriculture.	Richmond, Va	
West Virginia	H. E. Williams, commissioner of agriculture.	Charleston, W. Va	
Wisconsin	F. B. Moody, State forester	Madison, Wis	

The supplies of the wood-using reports for the following States are exhausted:

Idaho.
Iowa.
Kentucky.
Louisiana.
Maryland.
Massachusetts.
Minnesota.
Montana.
Oregon.
Washington.

HOW HAWAII HELPS HER FARMERS TO MARKET THEIR PRODUCE.

By E. V. Wilcox, *States Relations Service.*

PRIOR to the establishment of the Territorial market under the supervision of the Hawaiian Experiment Station, the tourists who visited Honolulu had for years complained of the impossibility of securing any adequate conception of the nature and variety of tropical fruits by an inspection of the local markets, and of the absence of these fruits on the menus of Honolulu hotels. The fruits to be obtained on the Honolulu markets included California oranges and grapefruit, a poor quality of Chinese banana, poor specimens of pineapple picked so green that they had neither sweetness nor flavor, papayas which might or might not be fit to eat, occasionally an avocado composed largely of an immense seed with a thin layer of pulp around it, a few turpentine mangoes, and in the Chinese markets a considerable variety of the less common tropical fruits. The reason for the lack of any adequate supply of tropical fruits in proper condition on the Honolulu markets was found in the total absence among farmers of organization or information regarding the demands of the Honolulu market or the methods of grading and shipping the various fruits and vegetables. To this reason should be added the traditional and well-grounded suspicion that in the event of making a shipment of fruit or vegetables to Honolulu the farmer might not receive a remittance large enough to pay the freight. When one asked why Honolulu markets were not properly supplied with tropical products the farmer replied that the dealers apparently did not want such produce, or at any rate would not pay enough for it to give the farmer a profit, while the dealer replied that either the produce in question could not be profitably grown in the Territory or the farmers were not sufficiently industrious to engage in any special line of agriculture. To understand how such a situation arose it is necessary to sketch briefly some of the early events on the island.

When Capt. Cook discovered the Hawaiian Islands, in 1778, he found there about 400,000 natives, largely engaged in agriculture and fishery and in self-supporting condition. With the establishment of a sailing service between Hawaii and the mainland, after the advent of the white man, trade began to develop with the mainland in agricultural produce. The forty-niners in search of gold in California received a large part of their supplies of potatoes, wheat, beans, etc., from Hawaii by means of sailing vessels. With the mainland and with oriental countries considerable trade was also developed in sandalwood, pulu fiber, candlenut oil (the export of which at one time reached a volume of 10.000 gallons a year), and cotton, especially after the Civil War. Moreover, the whaling fleets, which for many years operated in Hawaiian waters, offered a large market to Hawaiian farmers for miscellaneous farm products.

CHANGES IN ECONOMIC CONDITIONS SINCE THE ADVENT OF THE WHITE MAN.

The advent of the white man in Hawaii was not an unmixed blessing to the natives. It brought about important far-reaching changes in their habits of life and in their industries, but these changes were not all to their advantage, as is apparent from the diminution of the native population. At present, notwithstanding the large influx of Chinese, Japanese, Porto Ricans, Portuguese, Spanish, Filipinos, Russians, and others, brought in as laborers, and the considerable numbers of Americans and Europeans who came to establish themselves in business, the total population is only 200,000, or one-half that present in Capt. Cook's time, while more than half the foodstuffs are imported from the mainland and the Orient, and a large proportion of the natives have ceased to be farmers. These changes and the resulting present condition have been brought about largely by changes and disturbances in the marketing conditions for local products. The land was gradually taken in large areas by corporations for the production of sugar cane, and later for plantations of pineapples, sisal, rubber, etc. The transportation facilities furnished by sailing vessels, and later by steamships. were quite fully absorbed in carrying sugar from the various islands of the group to Honolulu and from Honolulu to the mainland. There is a decided advantage to the transportation companies in having a large return freight from the mainland. The building up of this business in return freight from the United States greatly checked the development of local farming enterprises by reason of the extensive business connections which the transportation companies had with local dealers. The great development of the sugar industry, therefore, operated to the discouragement of farming.

UNSATISFACTORY CONDITIONS IN EARLY HOMESTEAD COMMUNITIES.

There have always been in Hawaii men interested in the maintenance and prosperity of a local farming population. Their efforts have from time to time brought about the establishment of homestead communities in different localities on the various islands. The underlying idea which governed the establishment of these homestead communities was not always the development of independent farming but rather the attachment of the plantation laborer to the soil by giving him a small tract of land on which to raise garden vegetables, a few fruit trees, and possibly some poultry, a cow, and a few pigs. The area of homesteads, as parceled out in the early days, was about 6 acres and was obviously inadequate for the maintenance of the family in an independent condition. As a matter of fact, few even of these small homesteads were properly farmed. The laborers recognized the fact that under existing conditions a living could not be made from such a small area. The only cultivation, therefore, which was done on the homesteads was in the nature of small garden patches, and this work was done by women and children, while the men labored on neighboring sugar plantations. In a large percentage of cases the homesteads were simply planted to cane under contract with the sugar plantations and cane was harvested by the regular labor force of the plantation.

ESTABLISHMENT OF A TERRITORIAL MARKET UNDER THE SUPERVISION OF THE EXPERIMENT STATION.

The unsatisfactory conditions in markets for farm produce in Hawaii finally induced the Territorial legislature by joint resolution of the session of 1909 to appoint a commission on fruit growing and truck farming for the purpose of investigating the market conditions and for recommending to the legislature a method of overcoming these difficulties. The commission was at once appointed with the writer as chairman and a report was submitted in February, 1910, recommending the establishment of a Territorial market. It had been originally intended that the Territorial market should be from the beginning under the supervision of the Hawaii experiment station, maintained by this department. By a ruling of the Territorial attorney general, however, it was decided that the Territorial funds at the disposal of the station could not be used for that purpose. A temporary arrangement was therefore made whereby the Territorial department of immigration, labor, and statistics maintained a Territorial market for nearly two years. At the 1913 session of the Territorial legislature an act was passed placing funds at the disposal of the Hawaii experiment station to be used in furthering the production and marketing of miscellaneous farm products. As a result of this action of the legislature the experiment station established a Territorial marketing division under its supervision on July 1, 1913.

WORK OF THE MARKETING DIVISION OF THE STATION.

The astonishingly low ebb to which trade in local farm produce had fallen was evidenced by the fact that for the first four months of its existence the produce received by the Territorial market did not reach a total value of $700. It required patience and careful managing to establish in the minds of local farmers any confidence in the possibility of marketing farm produce in Honolulu with a profit to the producer. Through conversation with many of the farmers it was found that they had all had practically the same experience. It was impossible for any one farmer to raise enough produce to secure the reduced rates granted by the steamship companies to 5-ton shipments. Moreover, his small farm area could not be allotted to different crops in such a manner as to bring about a steady supply. The worst feature of all from the standpoint of the small farmer was that no market information was available in any of the local newspapers. The farmer was, therefore, never able, except through sheer luck, to send a shipment to a market in which a good demand existed. In most instances the market was found to be occupied by large shipments just received from the mainland.

The list of difficulties which confronted the farmer in Hawaii was not exhausted by the lack of information concerning the market, high freight rates, competition with produce shipped in from the United States and the Orient, and the indifference of Honolulu produce dealers. Another serious difficulty was furnished by the uneven nature of the land, the prevalence of insect pests and fungus diseases, the unusual heaviness of the soil, and poor roads leading from the somewhat isolated farms to boat landings. In fact the whole field of diversified agriculture in Hawaii was, until quite recently, neglected by reason of the intense interest in the production of sugar. It was therefore obviously necessary for the Hawaii experiment station to begin at the beginning and to help as rapidly as possible to bring about conditions which are recognized as fundamental to successful farming.

The freight rates on the local interisland steamships were high for small shipments, and the charges of commission men and other middle men amounted to so much in the aggregate that little or no profit was received by the producer, even when his produce reached Honolulu at a time of unglutted market. An investigation of the egg industry, for example, showed that with eggs retailing in Honolulu at 60 cents a dozen, the farmer located at a distance of 80 miles on the island of Maui netted only 13 to 15 cents a dozen for his eggs. With the establishment of the Territorial market a decided change in betterment of marketing conditions took place. The farmers who first took advantage of the market were encouraged to increase their production, others learned of the opportunities offered by the marketing division, and within six months enough of certain kinds of produce was received at the market to maintain a steady supply for a slowly increasing number of customers who visited the market for their supplies.

Visits to the various produce dealers in Honolulu brought out quite clearly their attitude and the difficulties which they had experienced in attempting to depend upon local supplies of farm produce. A number of them had had very unsatisfactory experiences. After making an arrangement with some dairyman for the purpose of handling his butter, they were unable to deal satisfactorily with him for the reason that he could not maintain a uniform supply and sometimes could not secure transportation for his produce on the local steamships. The dealers had, therefore, come to depend upon shipments from the mainland by regular steamers, and had, of course, made arrangements with mainland dealers whereby the shipments to Honolulu were regulated so as to maintain a constant and uniform supply.

The Hawaiian farmers were therefore confronted with the fact that peanuts were imported in large quantities from China and Japan, beans from the mainland, corn from Seattle and Manchuria, oranges, grapefruit, carrots, beets, asparagus, potatoes, and various vegetables, as well as cold-storage chickens and turkeys, from California, and onions from Texas and Australia. Without any information as to the actual condition of the Honolulu market, it was practically impossible for the farmer to prevent glutting the market by making a shipment to Honolulu.

ENCOURAGEMENT OF ORGANIZATION AMONG FARMERS.

In the management of the Territorial marketing division it was apparent at once that the fundamental difficulty to be overcome was that of the total lack of organization. Rather unusual difficulties had to be overcome in starting any system of organization among the farming population. There are a few communities composed almost exclusively of one race, for example, Hawaiian, Portuguese, and, in one or two instances, American. Most communities, however, are of mixed races, involving Japanese, Chinese, Hawaiian, Korean, Filipino, and Portuguese, as well as American. Few other races understand the Chinese or Japanese language.

Nearly all races in Hawaii speak and understand Hawaiian, many of them having better knowledge of Hawaiian than of English. The diversity of language and ideas, and, in many cases, the sheer impossibility of understanding one another readily, made the establishment of cooperative associations among these groups of farmers a slow and difficult procedure. Through the medium of pidgin English, however, the universal business language of the Orient, and by enlisting the interest of representatives of various races, quite satisfactory cooperative associations have at last been formed in the various farming communities. The simplest form is a mere voluntary organization of farmers who pool their produce and ship it in common in the name of the organization to the Territorial marketing division. Some of the more advanced associations have monthly or bimonthly meetings and have affiliated women's organizations. In some instances they sell all their produce cooperatively and buy a large part of their supplies, building materials, fertilizers, household utensils, and standard groceries cooperatively. The prevailing idea in nearly all of these cooperative associations of farmers in Hawaii has been to make a study of their immediate local markets their first problem and then to organize their farm operations in such a manner as to ship to Honolulu cooperatively and at opportune times all produce not demanded by their immediate local market. The chief reason for this arrangement is that prices on local markets in the various islands are almost invariably higher than in Honolulu.

One association on the island of Maui is composed exclusively of American farmers. Their main crop is pineapples. They were induced to take up land in this locality by contract with the local cannery, which agreed to take their pineapples on a sliding-scale system regulated by the sale price of canned pineapples. Up to that time no trouble had been experienced with such contracts. Before the first crop of pineapples in this community matured the price for fresh fruit was reduced one-half or more, and the farmers were brought face to face with a new emergency. This is merely an illustration of the fate which may befall farming communities who depend upon the sale of one product under contract to a neighboring mill or cannery. A movement was at once started to establish a cooperative cannery for handling the fruit of the community, but, in the meantime, it was necessary to attempt to save the first crop by selling the pineapples fresh to the Territorial marketing division. In another neighboring community on Maui, composed largely of Portuguese and Japanese, corn, beans, cabbage, and poultry are the main products for sale. This community buys its supplies through a business manager elected by popular vote and sells its produce cooperatively through the same manager. The association has succeeded in placing its products advantageously upon the small local markets on the island of Maui and is now making large shipments to the Territorial marketing division for sale in Honolulu or for reshipment to San Francisco.

Both of these associations are making a thorough study of the methods of sorting, grading, holding, packing, and shipping their products. The unsatisfactory condition in which much of the produce was received by the Territorial market in Honolulu showed at once that a special effort must be made to give instruction and advice in the matter of packing and shipping. Through the extension work of the experiment station, a great amount of good has been done along this line. The extension men of the experiment station have visited the various farming communities with sample packing cases and have demonstrated methods of wrapping, packing, and kinds of shipping cases which have proved to be satisfactory for Hawaiian conditions. These were matters to which, for the most part, the Hawaiian farmer had given no thought. Extension work on methods of packing and shipping is yielding large results among these farmers. Considerable experience had already been had in shipping fresh pineapples to San Francisco and farther inland, and one of the most expert packers in the Territory was employed in demonstrating the best methods of sorting and packing this fruit for long shipments. (Pl. IX.) The methods of packing and shipping butter were also carefully studied and instruction given in this matter to the butter producers in the neighborhood of Hilo. In a number of instances in which the farmers could not be made to believe through correspondence that their produce was not arriving in good condition they were induced to come to Honolulu in order to see the condition in which the produce arrived at the Territorial market.

DISTRIBUTION OF MARKET INFORMATION.

In order to keep the farmers on the different islands informed as to the prices and demands for various kinds of produce in Honolulu, a weekly market letter is prepared, a copy being sent to every farmer who ships produce to the Territorial market, copies also being furnished to all the newspapers of the Territory. This market letter is therefore printed in all languages which are spoken in the Territory and reaches practically every farmer who has miscellaneous produce for sale.

COLLECTION OF FARM DATA AS TO PROBABLE KINDS AND AMOUNTS OF PRODUCE.

Soon after the establishment of the marketing division an active campaign was started to secure advance notification and estimates from farmers throughout the Territory as to the kinds and amounts of produce which they were likely to have in the near future for shipment to Honolulu. A card system was devised for the use of all farmers who wish to patronize the marketing division. On these cards the farmers indicated the number of acres planted to various crops, the varieties which they had used, the expected time of maturity of the crops, and the expected amount of produce as estimated from average yields in their neighborhood. By means of other cards the marketing division is furnished, about two weeks in advance of shipment, the closest possible estimates of the amount of produce and the approximate date of shipment. Usually the exact date can be given, for the reason that from many ports there is boat connection only once a week. This system of mutual exchange of information between the marketing division and the contributing farmers makes it possible to regulate the supply of produce so as to hold the trade which is already established in Honolulu and tends to prevent the flooding of the market.

BENEFITS OF THE WORK.

The beneficial results of the establishment of the Territorial market are obvious on every hand. The demand for local produce in Honolulu has greatly increased as a result of the fact that dealers found that through the Territorial market they could secure a uniform and constant supply for their trade. Many local products which were rarely found upon the Honolulu market are now supplied in reasonable quantities. In the place of cold-storage chickens and turkeys the market is supplied with home-grown poultry in good condition. The local supply of eggs has not yet equaled the demand. The duck industry, which had previously been almost exclusively in the hands of the Chinese, has taken on an entirely different character. The Chinese raised only an inferior breed, which was maintained on ponds and which tasted fishy and unsavory. The great demand at present is for muscovies, while a large demand has arisen for duck eggs, especially those from the Indian Runner breed.

Until the establishment of the Territorial market, the small farmer had almost no market for the few cattle, sheep, and pigs which he might be able to raise. All this meat is now handled readily and at a profit to the farmer through the Territorial market. The market has also made it possible to secure in Honolulu a regular supply of limes and Hawaiian seedling oranges. These products had formerly gone to waste for the most part. The seedling oranges are a delicious fruit, more juicy and of better flavor than the oranges imported from California. A promising market has also been opened for Hawaiian grapefruit, breadfruit, avocados, mangoes, papayas, poha, jams, jellies, watermelons, mountain apple, and various other fruits and fruit products.

Before the establishment of the marketing division a large part of the corn consumed in the Territory was imported from Seattle and Manchuria. The market demand is now satisfied largely from growers on the various islands, and on account of the regular supply of fresh local corn the use of corn for feeding purposes is extending. It is a curious fact that corn had been used in Honolulu only for feeding chickens, and not as a horse and mule feed.

During the first year of the existence of the Territorial market the monthly receipt and sale of farmers' produce increased from $85 to $6,000. The total value of the produce received and handled during the year was $26,500, at a cost of $2,000. The funds originally provided by the Territory for conducting the market were so limited that a charge had to be made against the produce for the actual expense of handling, the Territorial funds being sufficient only for the salaries of the men directly engaged in developing and maintaining the market. Arrangements were made by which cold storage was provided for berries, butter, meat, and other articles on board the island steamships. By an understanding with the company which operates the steamships all produce consigned to the Territorial market is accepted without prepaying the freight and monthly bills for freight are rendered to the superintendent of the market. The freight charges against each consignor are deducted from the proceeds of his consignment before remittance is made. In this way a great saving is effected in the matter of bookkeeping on the part of the steamship company and the company has been willing to grant more favorable rates. A large increase in their local business between the different islands has awakened sufficient interest on the part of the officers of the steamship companies to induce them to provide better facilities for the transportation of perishable produce. Before the establishment of the market the ships' crews had little experience in handling any perishable products, the freight being mostly sugar, fertilizers, and live stock on the hoof. As a result of the cooperation of the officers of the interisland steamships, farm produce has received more attention and more careful handling, with the result that it reaches the market in better condition than heretofore.

Simultaneously with this awakening of interest in local products on the part of steamship companies there has been an increased effort among the farmers themselves to crate and pack their produce in a satisfactory manner. Before any efforts at practical instruction along this line were put forth, the farmers of various races were without any hint as to the demands of the market regarding size and character of packages. The produce was sent in bags, loose crates, and various unattractive and totally inadequate containers, suffering greatly from bruising and heating or fermentation en route. While these difficulties have not been entirely overcome, great improvement in this regard is noted.

The farm produce received at the Territorial market is sold chiefly at wholesale to Army posts, hotels, boarding houses, hospitals, schools, and other institutions. A number of neighborhood groups of householders have been formed in various parts of Honolulu and these groups buy cooperatively of the Territoral market through a representative appointed by each group. In addition to the wholesale trade, a retail business of considerable proportions is done at the market. It was hoped in the first place that it might be possible to avoid the trouble of carrying on a retail business at the market. It was found necessary, however, to yield to the insistent demand of numerous individuals who wish to buy fresh local produce on the day of its arrival in smaller quantities than are considered in wholesale trade. The retail trade has involved particularly the purchase of live fowls, pohas, watermelons, and butter.

OTHER LINES OF FARM BUSINESS ENCOURAGED; PURE-BRED STOCK; SEED PRODUCTION.

In addition to the weekly list of prevailing prices issued by the marketing division and furnished to all farmers and newspapers, a list of breeders of pure-bred stock has been compiled and kept up to date by a card system, so that inquiring purchasers may be referred directly to individuals who have pure-bred stock for sale. In this work, as well as in the general increase in the use of local products, the actual receipts and sales of the marketing division indicate only a portion of the effect of the market in increasing the utilization of home products. Through the agency of the market, many sales and standing orders have been arranged which of course do not appear on the books of the Territorial market. The actual increase in the handling of local farm products upon the markets of Honolulu as a result of the establishment of the Territorial market is therefore much greater than would appear by the sales account of the market. Moreover, as already indicated, most of the local cooperative associations of farmers devoted their first efforts to a study of their immediate local markets and to supplying the demands of these markets. In some cases it required the efforts of a year or more before the local farmers were able to supply the demands of their local town markets.

IMPROVEMENT OF METHODS OF PACKING AND HANDLING.

The demand for reliable farm and garden seeds of varieties preferred in the Honolulu market and known to be adapted to the Hawaiian climate became so great that the marketing division was forced to make an arrangement by means of competitive bids for purchasing quantities of such seed and selling it to the farmers at cost price. This branch of the business in the marketing division has increased rapidly and is generally welcomed as a much-needed relief from the unsatisfactory seed markets to which the Hawaiian farmer previously had access. A number of Hawaiian farmers have gone into the business of producing seed for sale, and in such instances individual sales of their seed and standing orders have been arranged through the marketing division. The opportunity for the local production of seed seems to be greatest in the case of corn, cowpeas, jack beans, pigeon peas, Sudan grass, etc.

During the first year much of the time of the working force of the marketing division was absorbed in bringing about better methods of packing and handling produce, in organizing local communities into associations so as to simplify the inevitably elaborate bookkeeping of cooperative business, in furnishing more detailed information to farmers as to the quantities of farm produce demanded in Honolulu, the varieties preferred, and the seasons when best prices may be expected, and in making known to the citizens of Honolulu the merits of locally grown produce and of the need of supporting the Honolulu market in order to encourage the establishment of a solid farming population in the Territory. Incidentally in connection with this work, it soon became apparent that certain products could be grown in Hawaii in larger quantities than could be consumed in the Hawaiian markets. The Bermuda onion crop, although consumed in large quantities by the permanent population and by the Army posts in the neighborhood of Honolulu, overran all limits of local consumption and had to be shipped to the mainland. Satisfactory prices were obtained and no difficulty was experienced in shipping onions from Honolulu to San Francisco. Similarly with sweet potatoes, which mature at all months of the year in Hawaii, it was found that from May to July, during the off season in San Francisco, prices ranging from 4 to 8 cents a pound could be obtained in that city. Several shipments of sweet potatoes were made during this season with satisfactory results. From time to time an active demand for beans was manifest on the west coast, and it was found possible for the Territorial market to arrange, through the various farmers' cooperative associations, for large supplies of dry beans for shipment to San Francisco.

BRANCH MARKET IN SAN FRANCISCO.

The first year's work of the Territorial market showed clearly the necessity of maintaining a branch market in San Francisco for handling Hawaiian products. Thus far all shipments of produce to San Francisco have been made by consignment, but it became evident that the business could be much increased by having an agent of the Territorial market in San Francisco. Naturally, his interest in the development of the business would be greater than that of the commission men, to whom the receipt of shipments of Hawaiian produce was merely an incidental matter. A recommendation to this effect was made to the governor and the legislature, with the result that at the 1915 session of the legislature provision was made for maintaining a branch office of the Territorial market in San Francisco. Thus the Hawaii marketing division began operations in San Francisco July 1, 1915. Its main business thus far has been the handling of fresh pineapples. The Hawaiian pineapple canneries had reduced the price of pineapples and offered only $5 to $10 a ton for first-grade pineapples instead of $18 to $21, which had previously been the prevailing price. Since in Hawaii it costs in different localities from $12 to $14 a ton to produce pineapples it was necessary that the small growers secure some other outlet for their fruit in order to avoid losses. It could not be foretold whether the old prices would be reestablished after a slump of one year's duration, but an attempt was made to market fresh pineapples in San Francisco in order to relieve the local situation. There had been a persistent tradition in Honolulu

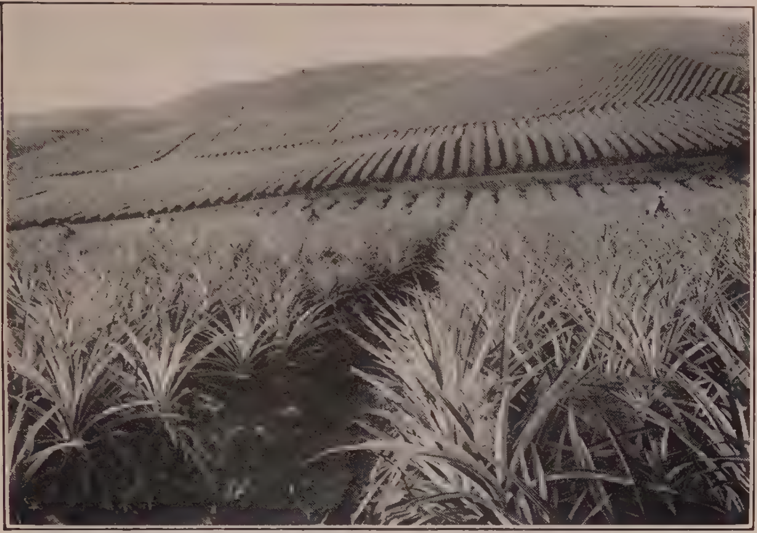


FIG. 1.—WHERE THE PINEAPPLES GROW.

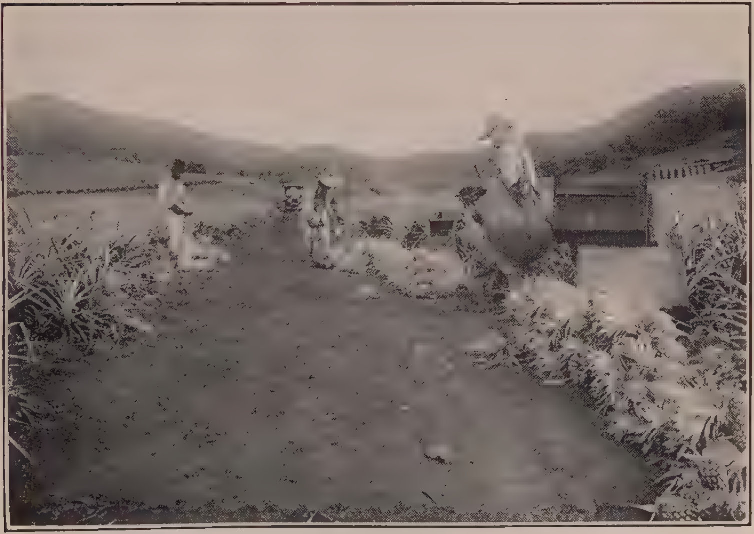


FIG. 2.—GATHERING AND SORTING PINEAPPLES.

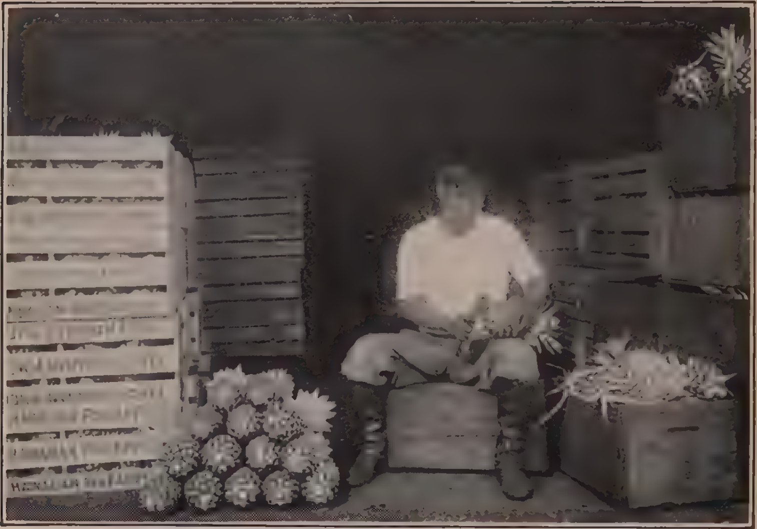


FIG. 1.—CLEANING THE PINEAPPLES WITH A WIRE BRUSH BEFORE PACKING.

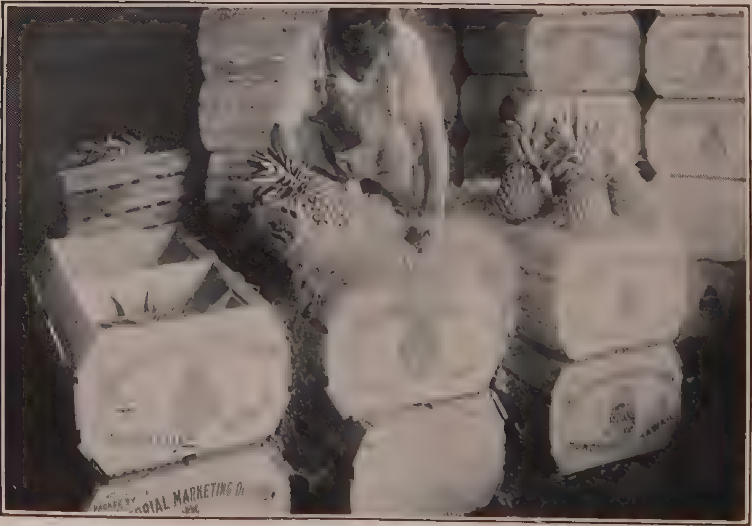


FIG. 2.—PACKING PINEAPPLES FOR SHIPMENT

that pineapples would not stand shipment well to San Francisco and that only a few cases a week would be demanded by the markets of the west coast. It was found almost immediately, however, after the establishment of the branch office in San Francisco that the difficulty of pineapple marketing lay not with losses suffered during shipment nor in securing a market for the fruit, but in securing space on the steamships plying between Honolulu and San Francisco. Thus far it has not been possible to meet satisfactorily more than a small fraction of the orders for Hawaiian pineapples, and this failure is due entirely to a lack of transportation facilities. It is believed, however, that these facilities will be improved in the near future. With the prevalence of the fruit fly in Hawaii, unfortunately, no fruit can be shipped to San Francisco except pineapples and bananas. If, however, adequate transportation facilities for carrying these fruits were supplied, the trade in fresh pineapples and Chinese bananas and cooking bananas might be expected to increase rapidly.

APPROPRIATIONS FOR THE WORK.

The substantial recognition of the services of the marketing division to the Hawaiian farmers and to the Territory as a whole is shown by the action of the legislature at its session in 1915. An appropriation of $14,400 was made for a building to be used as headquarters of the marketing division in Honolulu. This building is already nearly completed, is conveniently located, both with regard to the steamship wharves and the railroad station, as well as to the commercial produce houses of Honolulu. The Territorial appropriation also carried an item of $7,500 to be used as a revolving fund to enable a prompter remittance to the farmer. During the first two years of the existence of the Territorial market no fund of this sort was available. It was necessary, therefore, to conduct the business of the market absolutely without capital, a rather anomalous procedure. The only inconvenience in this system, however, was the occasional delay in making remittances to consignors. It was obviously necessary to receive payment from sales before remittance could be made to consignors. Most of the business was carried on a monthly basis, and since even monthly credit was given only to responsible institutions no losses were suffered. The possession of a revolving fund, however, will make it possible to remit promptly to the producer and thus encourage the individual farmer.

In addition to the funds already mentioned, the appropriation carried an item of $24,000 for the biennial period, or $1,000 a month, for maintenance. This is considered sufficient for the maintenance of the main market in Honolulu and also the branch office in San Francisco.

RESULTS.

The substantial results from the establishment of the Territorial market have been far greater than were even anticipated by its friends and promoters. Starting with unorganized and isolated farming communities of different races, it has brought these men together to the mutual benefit of all concerned. Beginning with a farming population which had been originally laborers and totally without information as to market requirements for farm products, it has brought about a striking improvement in the grading and packing of tropical fruits and products to the benefit of the farmer and of the consumer in Honolulu and on the mainland. Initiating a practical market system among a set of farmers who were thoroughly discouraged as to the prospects of carrying on general agriculture in Hawaii, it has shown that reasonable profits can be derived from diversified agriculture in Hawaii.

UNPROFITABLE ACRES.

By J. C. McDowell,
Agriculturist, Office of Farm Management.

OUR farm management investigations show that on almost every farm a portion of the area is carried at a loss and that on this account a large percentage of farms are unprofitable. After deducting a fair rate of interest on the investment and allowing that portion of the living which is furnished by the farm, including house rent, it was found that over 30 per cent of the large number of farms studied during the past year had nothing left with which to pay for the labor spent upon them. In many cases the operator paid something for the privilege of working.

We hear many uncomplimentary things said about the unprofitable dairy cow, the "boarder," supported from the profits of the remainder of the herd, but on many farms the unprofitable cow is not the only boarder. Low-yielding acres, like boarder cows, are often fatal to successful farming. Our farm survey records show that areas of poorly drained, compact, and sour soils, or soils low in humus, greatly reduce net profits. Sometimes these records show that as much as 30 per cent of the entire farm acreage does not produce enough to pay its way.

One farm in Wisconsin, on which records were recently taken, has 40 acres of poorly drained land that in its present condition is practically worthless. Twenty-five dollars per acre spent in drainage will make this 40-acre tract the equal of any in that district, and good land is selling there at $150 per acre. A small portion of similar land on this farm has already been tile-drained and is now producing a fair profit on each acre so improved.

The successful business man always tries to weed out all unprofitable enterprises and to expand those that pay a profit. Unprofitable acres can not always be disposed of as readily as boarder cows, but usually they can be improved until they become profit bearing. If the income from such land can not be increased it is quite possible that the labor spent upon it can be reduced until the income at least pays a little more than the cost of labor.

ITEMIZE BEFORE PURCHASING.

In buying a farm, unprofitable acres that can not easily be made profitable should ordinarily be considered as having little or no agricultural value. They may even be a burden to their owner, in which case they have a negative value. A farmer was about to buy a quarter-section farm in the corn belt at $100 per acre. This appeared to him to be a very reasonable price for a farm in that region, until a careful analysis of the proposition called his attention to the large amount of waste land on the farm. Actual measurements and careful estimates furnished the following data:

80 acres rich, sandy loam, not stony, not rough, gently sloping, well drained; actual value $125 per acre; $125×80	$10,000
45 acres poor land, sandy, stony, rough, hilly, probably of little or no agricultural value; actual value	0
35 acres poor pasture land, wet land that can be drained, but that can not be drained at a profit; actual value $10 per acre; $10×35	350
Buildings	2,450
Total	12,800

$12,800÷160=$80.

These figures gave the farm, including buildings, a value of $80 per acre, though a part of it was worth considerably more than the average price per acre asked for the farm. An itemized study of the farm, acre by acre, and a detailed study of fences, buildings, and other improvements, should always be made before purchasing. Such investigation often calls attention to enough unprofitable acres to stop the sale.

PROFIT INFLUENCED BY NUMBER OF ACRES.

The size of the business often has much to do toward making the farm profitable. Farm-management records show that farms are often either too small or too large for the most successful farming. There may be too few as well as too many acres. A man may not have enough land or he may be "land poor," thereby rendering all his acres unprofitable.

About 30 years ago a Wisconsin farmer with a large family was deep in debt. His farm consisted of 120 acres, half of which was under the plow. The remainder was woodland and expensive to clear. For 12 years the farmer had not been quite able to meet his interest. To him the whole farm consisted of unprofitable acres. He finally decided that the farm was too small for the most efficient use of the labor available. Having an opportunity, he bought an adjoining 80 acres of cleared land, going in debt the full amount of the purchase price. From that time on the farm was prosperous, and in 10 years the entire farm was paid for and enough additional money saved to build a good house and barn. During this period there had been no great change in prices of farm products. The smaller farm had been unprofitable because the overhead expenses were too high for so small a business. In this case acres were made profitable by increasing their number.

In the early nineties a North Dakota farmer owned 3 quarter sections of land. His farm was quite heavily mortgaged and for a number of years he had not been able to pay interest in full. His family was small and for most of the work he had to depend on hired help. He concluded that under the circumstances he was working, or trying to work, too many acres. Finally, he sold a quarter section and paid his debts. Seven years later he had $5,000 in the bank. Increased prices of farm products during this period only account in part for this farmer's increased prosperity. In this case all the acres had been unprofitable largely because there were too many of them.

UNPROFITABLE ACRES DECREASE AVERAGE YIELD.

A decreased yield per acre in any State may indicate poorer methods of farming and less profitable farming. Contrary to public opinion, however, it may, and often does, indicate exactly the reverse. In districts where commercial fertilizers are not used, statistics frequently show that as prices go up the average yield per acre goes down. Better prices for wheat have caused large areas of wheat to be grown in the drier districts of the Central West on land that can not be made to produce large yields per acre. This lowers the average yield of wheat in these States at the very time that the farmers are improving their methods in order to have more wheat to sell at the higher price. In this way increased prices often lower the average yield of farm crops over considerable areas by bringing what were formerly unprofitable acres under successful cultivation.

The extensions of agriculture into regions that formerly could not be farmed at a profit may be due to a variety of causes, among which may be mentioned higher prices, better cultural methods, more efficient machinery, and immigration due to a general increase of population. All these factors combined to push both the corn belt and the wheat belt farther and farther west, thus developing large areas of land that had previously been considered worthless. The decreased average yield of corn per acre in some of our Western States is perhaps due more to increased acreage than to depletion of soil fertility. In the following table it will be noted that for Kansas and Nebraska there seems to be a direct relation between large acreage and low yield per acre.

Yield of corn as related to acreage.

Years.	Kansas.		Nebraska.	
	Average annual acreage.	Average yield per acre.	Average annual acreage.	Average yield per acre.
		Bushels.		*Bushels.*
1871-1880	1,940,037	33.7	822,209	35.7
1881-1890	4,997,125	27.6	3,309,961	31.5
1891-1900	7,357,234	21.9	6,636,385	26.4
1901-1910	7,298,172	22.1	7,642,217	26.1

In this table it will be noted that average yields go down as the acreage increases, and that when the acreage becomes practically constant the yields do the same. The acreage for the 10-year period 1901–1910 is practically the same as it was for the preceding 10 years and the yield is approximately the same for both of these 10-year periods. Other causes, such as variation in seasons, greatly influence the average yield of crops, but in this table the effect of climatic conditions for any particular year is minimized by taking 10-year averages. Sometimes our farming methods are criticized on the ground that they have decreased the yields by robbing the soil, when, as a matter of fact, the decreased average yield may be due in part to the bringing of less productive land under cultivation.

DEVELOPMENT OF UNIMPROVED LAND.

The Government irrigation projects have brought under successful cultivation millions of acres of arid land by applying water to acres that formerly were unprofitable. There are still large areas to be improved in the same way. The drainage of the immense swamp areas is also reclaiming many acres that are not only unprofitable but that are often a menace to health and a hindrance to travel and transportation. The clearing of the cut-over districts and the improvement of methods used in dry-farming are also doing much to make unprofitable acres profitable. However, irrigation, drainage, land clearing, and dry-farming include so much that is foreign to our subject that they permit only of brief mention here.

NONPRODUCING ACRES INCREASED BY LAND SPECULATION.

The cut-over districts of northern Michigan, northern Wisconsin, and northern Minnesota contain more than 30,000,000 acres of undeveloped land. Some of this produces enough timber or furnishes enough pasture to pay its way, but by far the larger part of this vast area must be classed as unprofitable. Quite a percentage of the best of the undeveloped land is now owned by land speculators and some of it is held at prices that make its successful development at present financially impossible. Similar conditions prevail in many parts of the West Central and Western States. (Pl. X.)

A report on file in the Office of Farm Management tells of delayed agricultural development along a certain railroad in a Western State. For a long distance the railroad traverses a belt of level and fertile but undeveloped prairie land. Less desirable land at a distance of 8 to 10 miles back from the railroad is quite well developed and producing fair crops. At first it seems very strange that the most fertile and best located land should be the slowest to develop. Further investigation disclosed the fact that the undeveloped land was owned by speculators and held at prices that made its development practically prohibitive. In a more limited way these conditions are found in all the new agricultural sections. Land speculators have not only greatly inflated the prices of land, but they are to-day holding a tremendous area out of production altogether. The unearned increment may eventually enrich the present owners, but to the general public these acres are all unprofitable. How to discourage excessive land speculation is a problem that is now puzzling many of the wisest men in our legislative assemblies. The solution of this problem would materially decrease one source of unprofitable acres in this country.

In the suburbs of nearly every city there is a considerable area of rich agricultural land that has been cut up into city lots and sold at prices that prevent its profitable use for agricultural purposes. Such land is held for speculation and for many years it may serve no useful purpose whatever. (Pl. XI.) In fact, these vacant lots are often badly kept, unsightly, and a menace to the health of the community. It would undoubtedly have been better if this land could have been left in farms until such time as it may be needed for building purposes. The area of each lot is small, but the total area of such unprofitable land is very great.

How to prevent this misuse and waste of good agricultural land that is so well located is not an easy problem. Vacant city lots are being used to encourage vegetable gardening in connection with boys' and girls' club work. This undertaking is meeting with some success, but by far the greater part of such land can never be used in this way.

We hear much comment about the great profits that are sometimes made by holding idle land for rise in price. The cost of holding this land is usually overlooked. Taxes and a fair rate of interest on the investment take a big slice of the unearned increment, and often unimproved city property is actually held at a loss. Not infrequently the present owners and possibly the general public would have been the

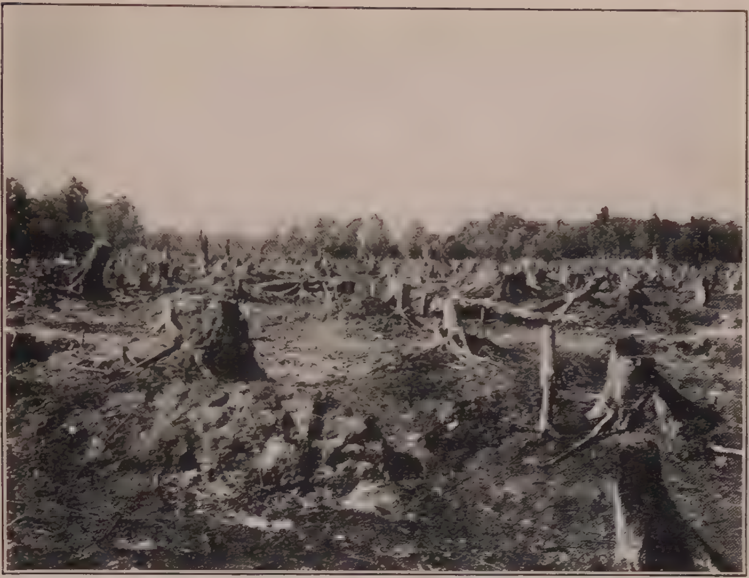


FIG. 1.—HARDWOOD STUMP LAND. GOOD SOIL, COMPARATIVELY EASY TO CLEAR AND MAKE PROFITABLE.

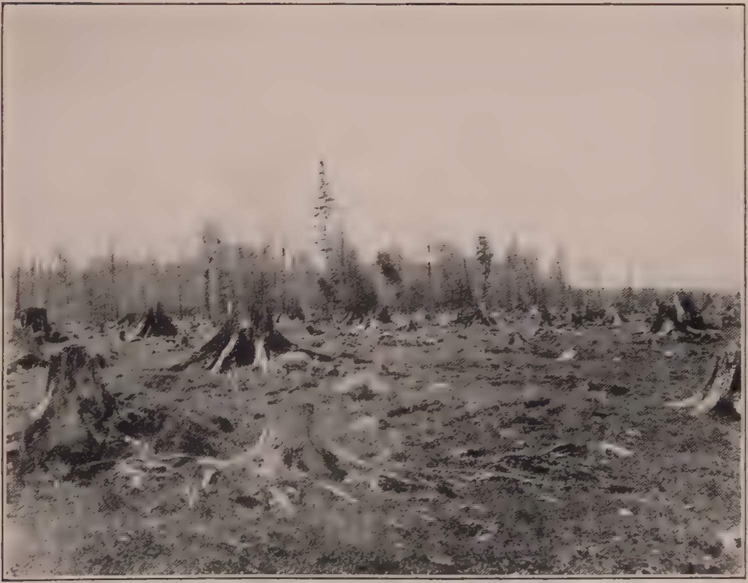


FIG. 2.—PINE AND HARDWOOD STUMP LAND. SOIL OF FAIR QUALITY, QUITE DIFFICULT TO CLEAR AND MAKE PROFITABLE.

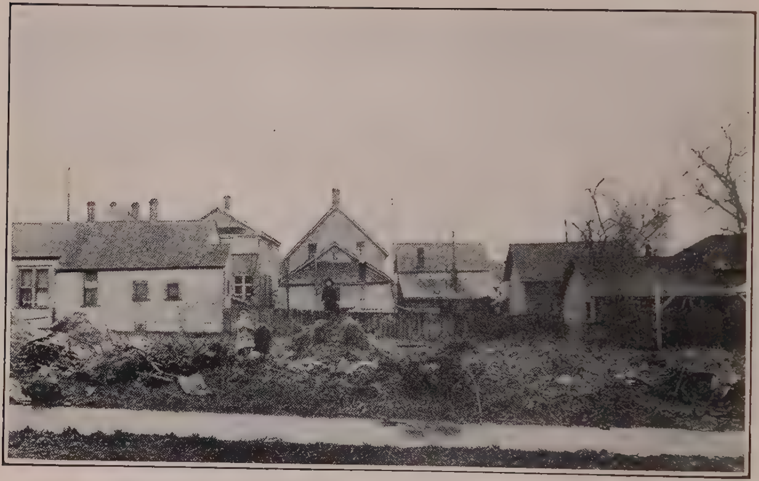


FIG. 1.—A VACANT CITY LOT EARLY IN THE SPRING OF 1914.

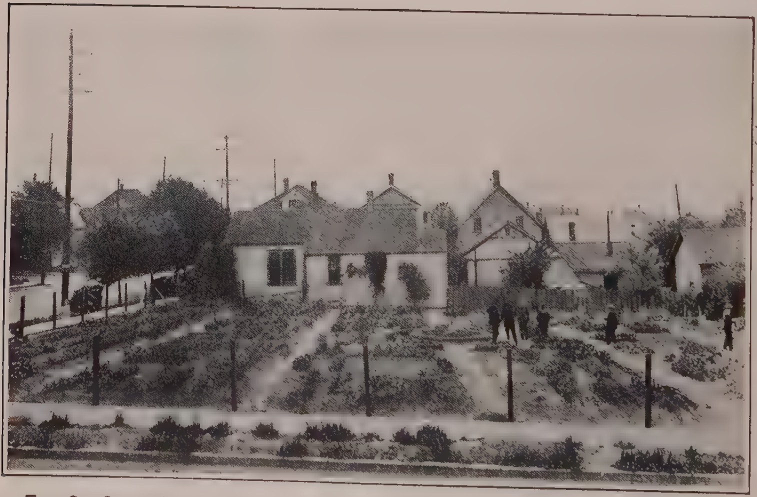


FIG. 2.—SAME LOT, AUGUST 15, 1914, AFTER IT HAD BEEN TRANSFORMED INTO A SPOT OF BEAUTY AND UTILITY.

Photographs by States Relations Service, Boys' and Girls' Club Work.

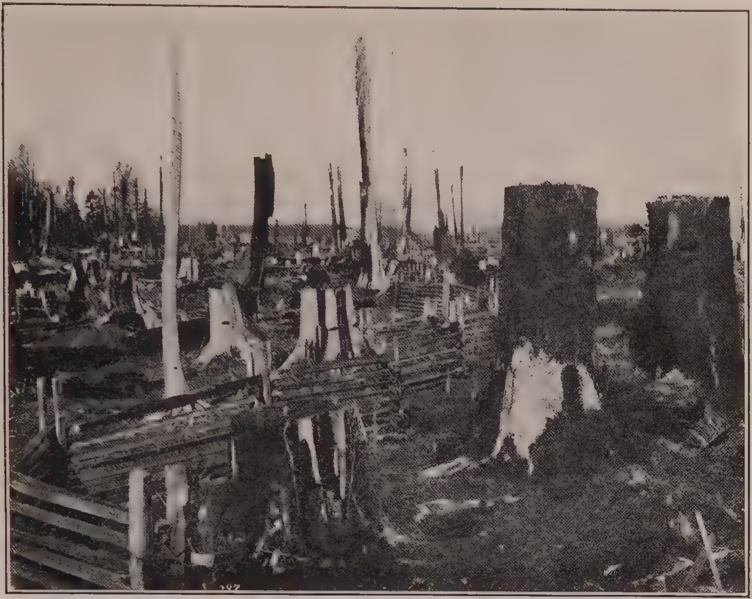


FIG. 1.—FIR AND CEDAR STUMP LAND. GOOD SOIL BUT VERY EXPENSIVE TO CLEAR.

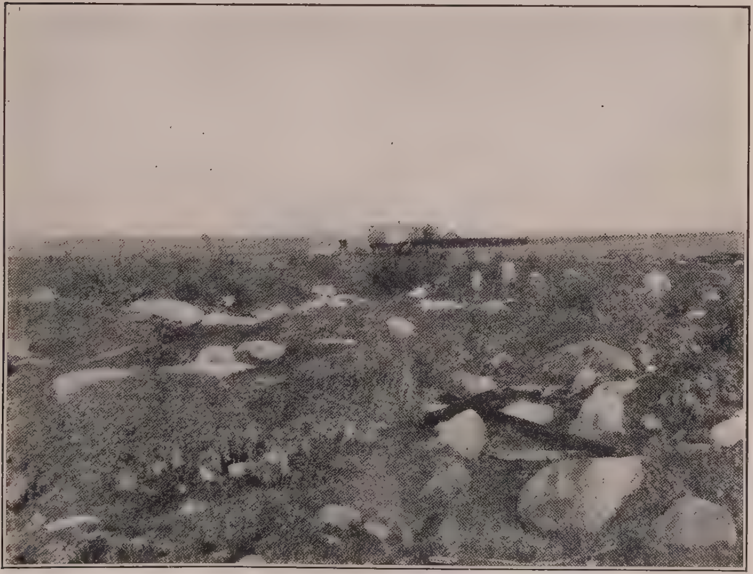


FIG. 2.—STONY LAND. VERY HARD TO CLEAR AND NOT WORTH MUCH WHEN CLEARED.

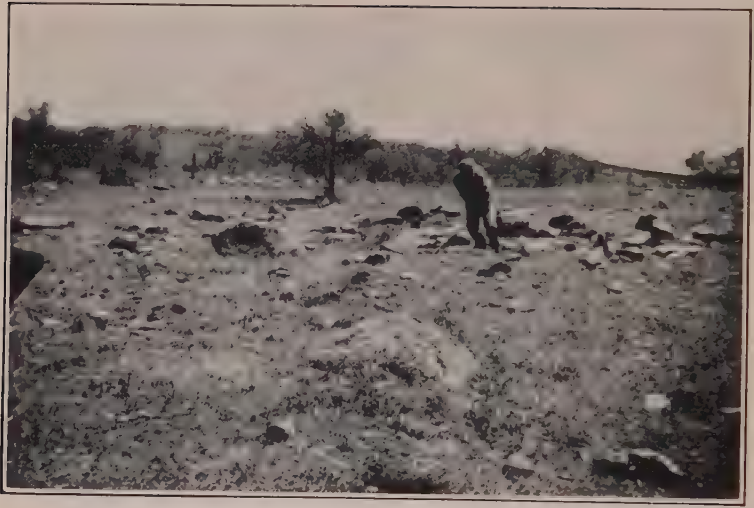


FIG. 1.—"UNPROFITABLE ACRES" ON A MASSACHUSETTS FARM IN THE SPRING OF 1914.

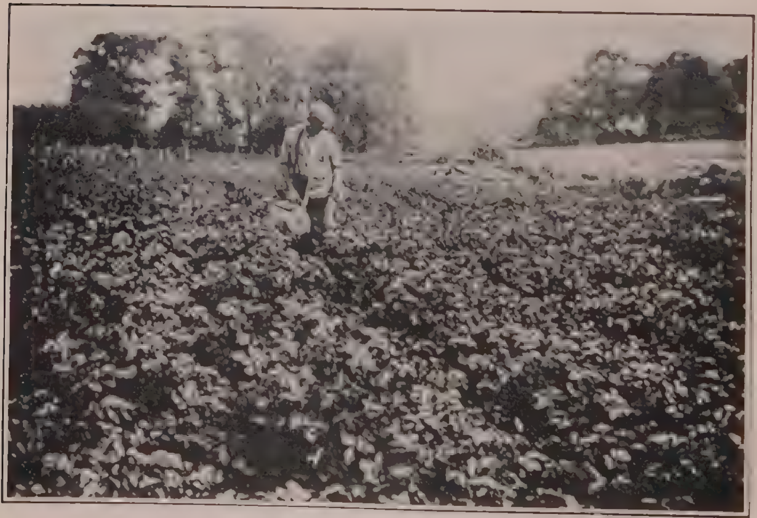


FIG. 2.—SAME LAND, LATE SUMMER OF SAME YEAR.

Photographs by States Relations Service, Boys' and Girls' Club Work.

gainers if unused suburban lots had been left in farms. In dividing rich agricultural land into city lots the desire to get something for nothing has added materially to the total number of unprofitable acres.

IMPROVEMENT DEPENDS ON DEMAND.

A considerable percentage of our unprofitable land doubtless never can be brought under successful cultivation by any methods now known. (Pl. XII.) It is also true that the sudden advancement of all our arable land to a point where each farm would become 100 per cent efficient might seriously affect the business side of farming by lowering the prices of agricultural products. Yet as population increases all classes of people will undoubtedly be benefited if the rapidly rising price of farm products can be met at least in part by setting idle acres to work and by making unprofitable acres yield a satisfactory income. (Pl. XIII.)

To meet the growing demand for farm products we must farm more acres or make each acre produce more. Land not now in farms should be made into farms, and unimproved land now in farms should be improved, only in so far as this can be done profitably.

UTILIZATION OF UNPROFITABLE ACRES.

To what extent and at what rate we should attempt to decrease the number of unprofitable acres depends largely on the increased demand for agricultural products. The law of diminishing returns prevents the reclamation of waste land until the rising prices or cheaper methods of production make such action practicable. Frequently it pays better to spend time and money in the further improvement of acres that are now profitable rather than in the reclamation of less desirable land.

Much money and valuable time is lost each year in almost every locality in the attempt to put unprofitable acres on a paying basis. Lack of satisfactory agricultural credit forces many a deserving family to waste time in trying to get a start on acres that moneyed men pass by. Misleading advertisements and inflated magazine articles have lured many a family to give up a comfortable living in the city to drag out a miserable existence in toil and worry on worthless land. Lack of knowledge of the business side of farming is largely responsible for loss in the management of unprofitable acres. The problem of how to prevent a waste of money, time, and energy in the attempt to develop worthless land is worthy of careful study. At best such waste can only partially be prevented. The pity of it is that so much of this loss falls on those who can least afford to lose.

Every farmer who owns unprofitable land should make a detailed examination of his farm, acre by acre, to detect all unprofitable areas. Next, he should determine the approximate cost of making each acre pay its way. Such study will disclose what and how much is needed in the way of manure, commercial fertilizer, drainage, or other preparation, to produce satisfactory crop yields. This analytical study of each portion of the farm will sometimes call attention to many acres that can not be cultivated profitably. It is better to leave such land in permanent pasture, or even to let it lie idle, than to work it at a loss. The farm not only furnishes a home, but it is a place of business. As such, each enterprise and acre should receive individual attention, and, so far as practicable, the entire farm should be placed on a paying basis.

SHIPPING FISH THREE THOUSAND MILES TO MARKET.

By E. D. Clark, *Bureau of Chemistry.*

MILLIONS of pounds of halibut and salmon are shipped each year across the United States from the Pacific to the Atlantic coast. Few of the persons who help to consume this vast supply realize that the fish has come overland. They imagine that its freshness is due to their own proximity to the ocean and believe that if they were so unfortunate as to live far inland good sea food would be unattainable.

As a matter of fact, it is the Pacific, not the Atlantic, which now furnishes the bulk of the salmon and halibut consumed in the country. For various reasons the Atlantic catches have diminished to such an extent in recent years that the supply from this source would be quite insufficient to supply even the large cities along the coast itself. On the other hand, the catches in the Pacific are enormous. The fisheries of Alaska alone yield annually products that are valued at two or three times the $7,000,000 paid to Russia in 1867 for the Territory, and the annual output of the Pacific salmon canneries is valued at $30,000,000. Sixty million pounds of fresh halibut alone were shipped east last year.

Refrigerator cars and artificial freezing have made possible the development of an industry which now regularly supplies even New England, the traditional home of American fishing, with fresh fish from the far West. At first the Pacific fishermen canned their salmon and sold what they could of their halibut to the local markets. The latter, however, could not begin to make away with all that the ocean offered. There were more fish than people to eat them and it was not until the possibility of sending them across the continent had been demonstrated that the Pacific fisheries became really profitable.

To-day fast express trains carry carloads of fresh salmon and halibut from the Pacific to the Atlantic in from 5 to 7 days. Packed carefully in ice from the time they leave the waters of the northern Pacific to the moment they are delivered to the consumer, these fish when they appear upon the table are practically indistinguishable in flavor and appearance from those that have been caught a few hours' sail away. From 20,000 to 24,000 pounds of fish are hauled in each car, so that the value of the shipment is sufficient to justify, from a business point of view, the care that is indispensable if it is to reach the market in good condition.

Though halibut and salmon are frequently shipped in the same cars, they are usually packed somewhat differently. When the halibut boats reach the docks, the fish are swung out of the hold in large rope nets caught up by the four corners. These nets are swung over to the "heading tables" and the fish dumped out. There they are decapitated, the operators hooking each fish with the left hand and slicing off the heads with a large knife held in the right hand. The headless fish, which have already been cleaned on board ship, are then packed in large boxes, the bottoms of which are covered with layers of cracked ice. More ice is placed upon the fish before the boxes are nailed down. From 350 to 450 pounds are packed in each box.

Salmon, on the other hand, are brought to the shippers in smaller lots and they are packed in smaller and flatter boxes than the halibut. Before packing, moreover, the fish are gone over very carefully and any defect, such as soft flesh or lack of brightness, results in their rejection (Pl. XIV, fig. 1). Shipments for the Atlantic coast are usually packed undressed; other fish are cleaned first.

As soon as they are filled, both salmon and halibut boxes are stored away in the refrigerator express cars waiting for them on the docks. These cars have already been thoroughly cooled by the ice in their bunkers and more ice is thrown over the boxes before the car is closed for its journey. The temperature in the interior is thus reduced to a point so low that comparatively little of the ice melts on the road, but icing stations are distributed along the route and the supply in the car is renewed from time to time.

Although these methods have succeeded in making practically the entire country an accessible market for Pacific fish, the supply is so great at certain seasons of the year that it has become necessary to devise other means to pre-

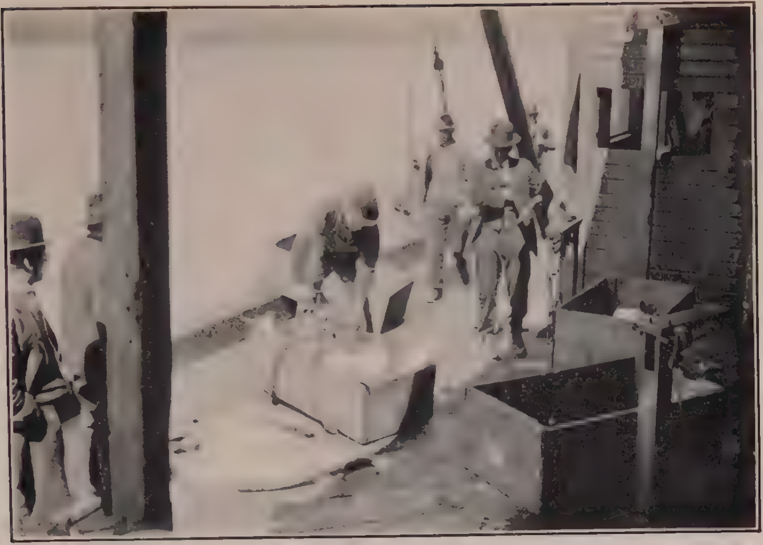


FIG. 1.—GLIMPSE OF PROCESS OF UNLOADING, CULLING, AND WEIGHING PACIFIC SALMON.

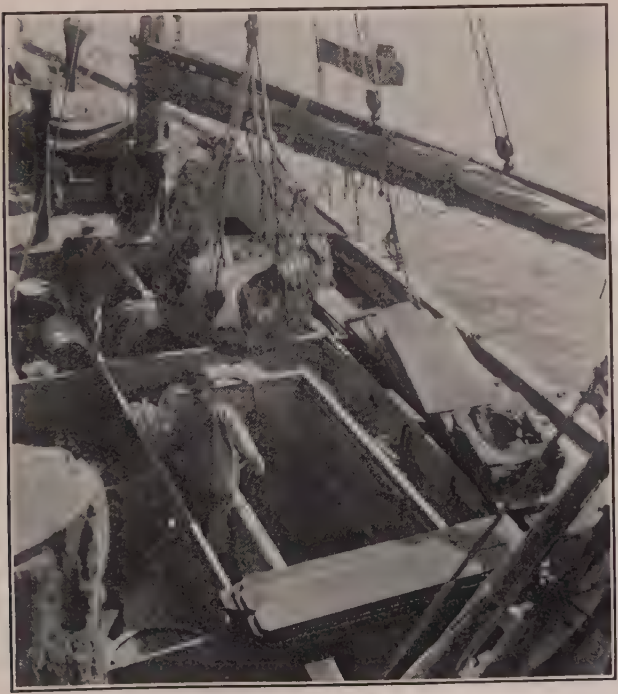


FIG. 2.—"SLING" FULL OF HALIBUT BEING LIFTED OUT OF THE HOLD OF A BOAT AT SEATTLE.

Frozen Halibut in Piles Awaiting the Glazing Process in a Pacific Plant which Freezes 3,500,000 Pounds of Fish Each Year.

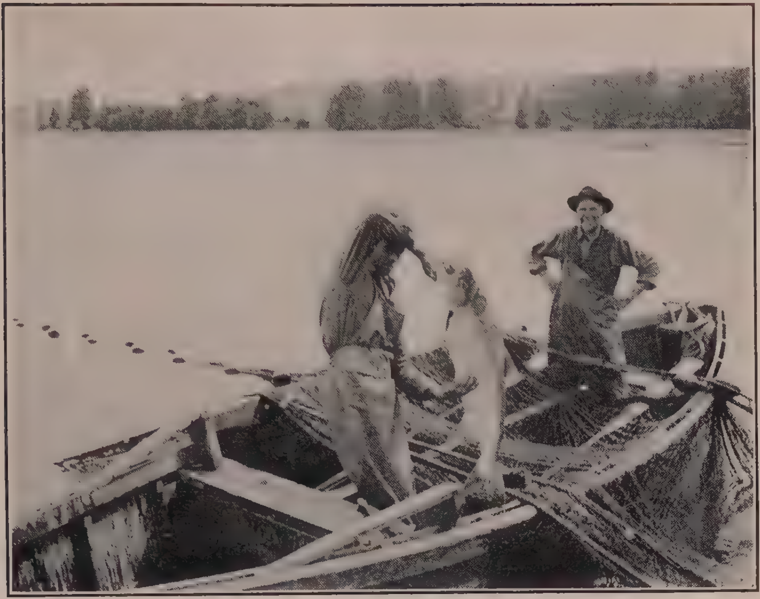


FIG. 1.—TAKING A LARGE CHINOOK SALMON FROM A SEINE IN THE COLUMBIA RIVER.

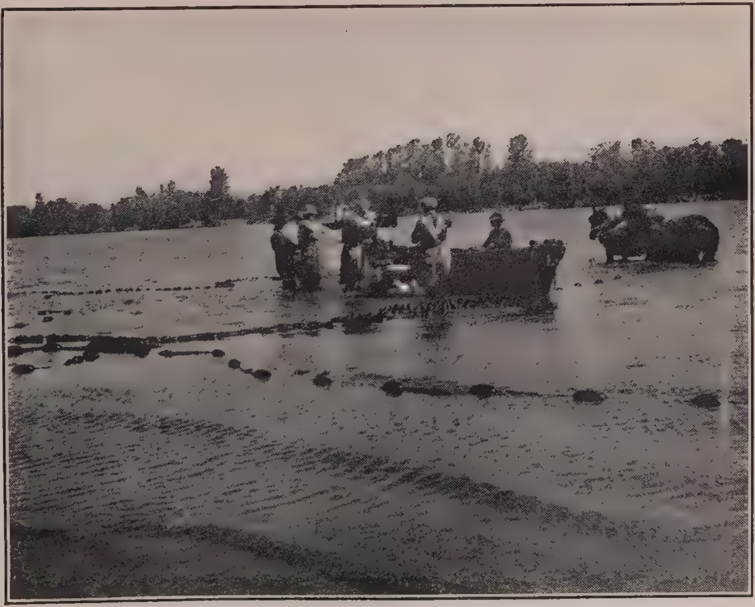


FIG. 2.—HORSE SEINE ON THE COLUMBIA RIVER BEING EMPTIED OF SALMON.

vent a large part of the yield from going to waste. Accordingly, great quantities of both salmon and halibut are now frozen and kept in cold storage to be marketed during the winter, when fresh fish of these species are not available. (See Pl. XV.)

In preparing fish for the freezer the first step is to wash off all blood and slime. This is never done with fish shipped in ice, because the slime has been found to assist materially in excluding the air and consequently in keeping the fish in good condition. With frozen stock, however, the protective covering of slime is not desirable, its purpose being better served by a thin glaze of ice.

From 12 to 24 hours in the "sharp freezer," where the fish rest on brine pipes in a temperature of zero or less, turns the salmon and halibut into a substance that is almost as hard as stone. To store them in this condition, however, would result in their gradually turning white through loss of moisture; while the action of the air would cause deterioration and change in flavor. To prevent this the fish are dipped several times in water in a room so cold that a thin film of ice forms around them, sealing them hermetically and permanently. Thereafter, if kept at a temperature below freezing, the fish remain for months unchanged in appearance or flavor.

The instant they are permitted to thaw, however, deterioration begins. It is, therefore, much to be regretted that the popular prejudice against cold-storage products in general, and frozen fish in particular, tempts many retailers to thaw out their stock and dispose of it to customers as fresh fish. Although it is true, of course, that fresh stock always brings a higher price than frozen, it is probable that the consumer's prejudice, which not infrequently keeps him from buying frozen fish at any price, is more responsible for this practice than the dealer's desire to obtain a little extra money by selling goods under false pretenses. Furthermore, the dealer buys his own supplies of frozen fish at prices which fluctuate widely. He is, however, prevented by the existing prejudice from reflecting to any great extent these fluctuations in the prices at which he sells and he is thus unable to stimulate in this way the demand for his goods. As a matter of fact, both practical experience and scientific research have shown that fish frozen in the manner described retains its flavor and its food value for a long time. There is no reason why anyone should hesitate to eat it and a more general consumption would be profitable to fisherman, dealer, and consumer alike.

At present the annual demand for frozen fish amounts to about 13,000,000 pounds of salmon and steelhead trout, popularly classed with salmon, and 20,000,000 pounds of halibut. Early in the season, when the salmon and trout are still outside of the large rivers and have to be caught by trawling, practically all of the catch is marketed fresh. After the fish have gone up the rivers to spawn, however, seines (Pl. XVI, figs. 1 and 2), gill nets, revolving fish wheels, and traps of many kinds furnish such large yields that the bulk of the sea harvest is either canned or frozen for consumption in the winter, when no fresh salmon are available.

Halibut, on the other hand, is always caught by trawling, both sailboats and steamers being employed in the industry, though steam is coming more and more into favor. The growth of the business and the migratory habits of the fish have resulted in a constant search for new halibut banks, which is now carried on as far northward as Kodiak Island and as far to the south as the Oregon coast.

The actual fishing is done from small dories, a number of which are carried by each parent vessel. These dories, each about 20 feet long, have a crew of two men. The trawl, or fishing gear, consists of hundreds of hooks on long lines, which, if connected together, would sometimes attain a length of several miles. This is baited with herring, squid, etc., and dropped overboard. On populous banks the halibut bite readily and the dory's crew is kept busy hauling in the lines. When the net in the bottom of the dory is filled to its capacity, the parent vessel is signaled to come alongside and take off the catch (Pl. XIV, fig. 2). Once on board the larger boat, the fish are cleaned immediately and their bodies filled with ice and stored in an ice-chilled hold until the cruise is over.

ANIMAL DISEASE AND OUR FOOD SUPPLY.

By Edward B. Mitchell.

(Prepared under the direction of Chief of the Bureau of Animal Industry.)

FOOT-AND-MOUTH disease was discovered in the United States in October, 1914. Between that time and November 1, 1915, when it existed only in a small area in Illinois, its suppression cost the lives of 168,158 animals, valued at approximately $5,676,000. This loss created consternation. The attention of the entire country was attracted to it and in several quarters the fear was expressed that the elimination of the disease by the slaughter of the exposed herds would lead to a serious shortage in the meat supply.

As a matter of fact, less than one-tenth of 1 per cent of the total number of the cattle, sheep, and swine on the farms of the country were killed in this way. That is to say, less than one meat animal out of every thousand was slaughtered to save the rest. The money that the country paid to rid itself of an exceptionally costly outbreak was less than 3 per cent of the annual tax that other animal diseases levy upon it.

If we should be compelled, on account of the foot-and-mouth disease, to throw away year after year the meat, the milk, and the hides of from 150,000 to 200,000 animals, it would, with justice, be regarded as a serious blow to the prosperity of the country. We are, however, throwing away so much more than this that, in comparison, the additional and unusual loss from the foot-and-mouth disease is insignificant.

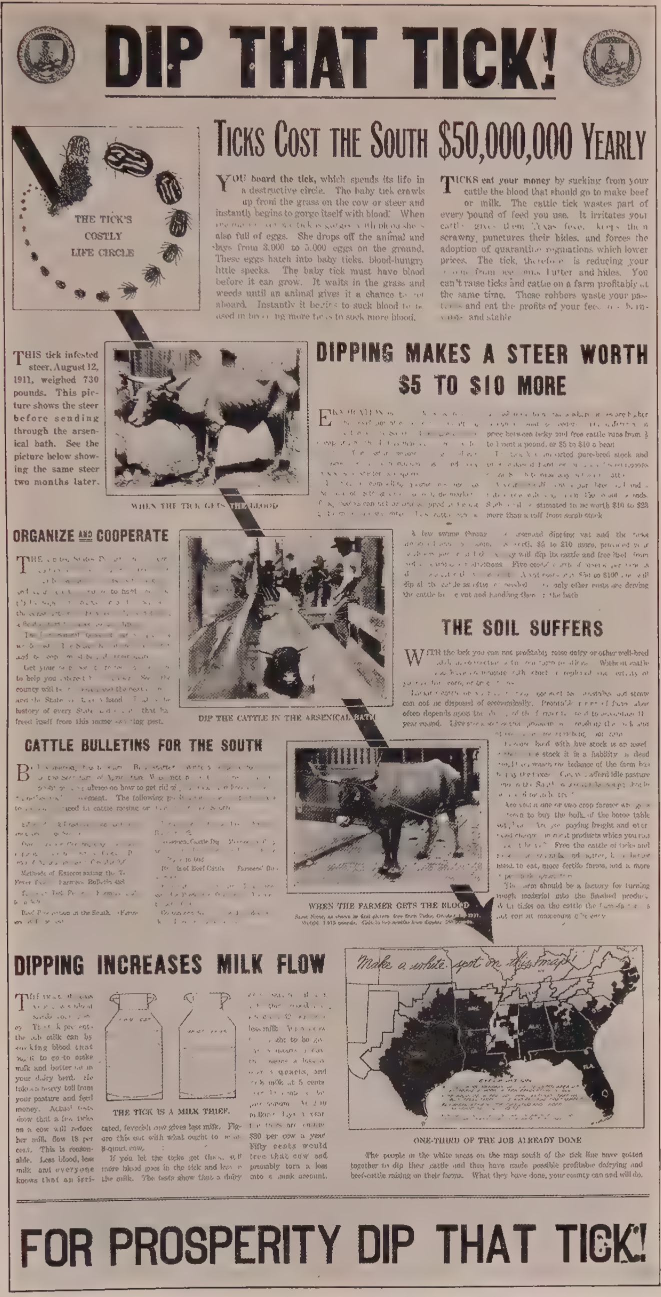
It is impossible to state with exactitude even the direct losses from animal diseases, but it is estimated that they amount to $212,000,000 a year. The indirect losses defy all calculation. It is certain, however, that by discouraging the industry of stock raising they not only hinder the development of sound agriculture but materially increase the cost of living for both the rural and the urban population.

The variety of maladies which afflict animals is, of course, almost as great as that to which mankind is subject; the number of diseases which are sufficiently widespread to be matters of economic importance is, however, comparatively limited. In the annual report of the Secretary of Agriculture for the fiscal year ending June 30, 1915, they, and the losses ascribed to each, are listed as follows:

Hog cholera	$75, 000, 000
Texas fever and cattle ticks	40, 000, 000
Tuberculosis	25, 000, 000
Contagious abortion	20, 000, 000
Blackleg	6, 000, 000
Anthrax	1, 500, 000
Scabies of sheep and cattle	4, 600, 000
Glanders	5, 000, 000
Other live-stock diseases	22, 000, 000
Parasites	5, 000, 000
Poultry diseases	8, 750, 000

In the case of a number of these diseases the means of control have already been discovered and total eradication waits only upon the realization by the people of the efficacy and economy of the measures which science recommends. This is particularly true of the cattle tick, the cause of splenetic or Texas fever, and a parasite that, directly and indirectly, is responsible for far greater losses than the $40,000,000 charged against it in the table indicate. In 1906 an area of 741,515 square miles in the South was under Federal quarantine because of this pest. From this area no cattle could be shipped unless they had been previously dipped in arsenical baths under Federal supervision or were sent for immediate slaughter in special cars to special markets, where they were handled and disposed of apart from other stock and brought their owners from one-half cent to a cent a pound less than clean cattle. To-day the quarantined area is only 465,733 square miles—less than two-thirds of what it was—and additional territory is being released each year. The complete extinction of the tick is only a question of time and determination on the part of those concerned. (See Pl. XVII.)

This progress has been made possible by the systematic dipping of herds in arsenical baths, the value of which was ascertained only comparatively recently. It was not, indeed,



DIP THAT TICK!

TICKS COST THE SOUTH $50,000,000 YEARLY

THE TICK'S COSTLY LIFE CIRCLE

YOU board the tick, which spends its life in a destructive circle. The baby tick crawls up from the grass on the cow or steer and instantly begins to gorge itself with blood. When [illegible] tick is gorged with blood she is also full of eggs. She drops off the animal and lays from 3,000 to 5,000 eggs on the ground. These eggs hatch into baby ticks, blood-hungry little specks. The baby tick must have blood before it can grow. It waits in the grass and weeds until an animal gives it a chance to get aboard. Instantly it begins to suck blood to be used in breeding more ticks to suck more blood.

TICKS eat your money by sucking from your cattle the blood that should go to make beef or milk. The cattle tick wastes part of every pound of feed you use. It irritates your cattle, gives them Texas fever, keeps them scrawny, punctures their hides, and forces the adoption of quarantine regulations which lower prices. The tick, therefore, is reducing your income from beef, milk, butter and hides. You can't raise ticks and cattle on a farm profitably at the same time. These robbers waste your pastures and eat the profits of your feed [illegible] barnyards and stable.

THIS tick infested steer, August 12, 1911, weighed 730 pounds. This picture shows the steer before sending through the arsenical bath. See the picture below showing the same steer two months later.

WHEN THE TICK GETS THE BLOOD

DIPPING MAKES A STEER WORTH $5 TO $10 MORE

E[illegible] price between ticky and free cattle runs from ½ to 1 cent a pound, or $5 to $10 a head.

The tick [illegible] imported pure-bred stock and [illegible] cattle.

[illegible] estimated to be worth $10 to $23 more than a calf from scrub stock.

A few swims through [illegible] arsenical dipping vat and the ticks [illegible] worth $5 to $10 more, provided your [illegible] will dip its cattle and free itself from [illegible] directions. Five cents' worth of arsenic per time is [illegible]. A vat costs from $50 to $100 and will dip all the cattle as often as needed. The only other costs are driving the cattle to the vat and handling them in the bath.

ORGANIZE AND COOPERATE

THE [illegible] to fight [illegible]

Get your [illegible] to help you [illegible] county will [illegible] the next [illegible] and the State [illegible] history of every State [illegible] that has freed itself from this [illegible] pest.

DIP THE CATTLE IN THE ARSENICAL BATH

THE SOIL SUFFERS

WITH the tick you can not profitably raise dairy or other well-bred [illegible]. Without cattle [illegible] fertility of [illegible]

[illegible] can not be disposed of economically. Profitable [illegible] often depends upon the [illegible] year round. [illegible]

[illegible] land with live stock is an asset [illegible] stock it is a liability [illegible] afford idle pasture [illegible]

Are you a one or two crop farmer [illegible] town to buy the bulk of the home table [illegible] Are you paying freight and other [illegible] products which you [illegible]. Free the cattle of ticks and [illegible] butter, [illegible] better meat to eat, more fertile farms, and a more [illegible]

The farm should be a factory for turning rough material into the finished product. [illegible] ticks on the cattle the [illegible] at maximum efficiency.

CATTLE BULLETINS FOR THE SOUTH

B[illegible] advice on how to get rid of [illegible] movement. The following [illegible] used in cattle raising or [illegible] South.

Methods of Exterminating the Texas-Fever Tick. Farmers' Bulletin 498.

Beef Production in the South. (Farmers' [illegible]

Breeds of Beef Cattle. Farmers' Bu[illegible]

WHEN THE FARMER GETS THE BLOOD

Same Steer, as shown in first picture, free from Ticks, October 1, 1911. Weight 1,015 pounds. Gain in two months from dipping [illegible]

DIPPING INCREASES MILK FLOW

THE tick [illegible] money. The tick prevents the milk can [illegible] by sucking blood that ought to go to make milk and butter fat in your dairy herd. He takes a heavy toll from your pasture and feed money. Actual tests show that a few ticks on a cow will reduce her milk flow 18 per cent. This is reasonable. Less blood, less milk, and everyone knows that an irritated, feverish cow gives less milk. Figure this out with what ought to be an 8-quart cow. [illegible]

If you let the ticks get them, still more blood goes in the tick and less in the milk. The tests show that a dairy [illegible] less milk. [illegible] quarts, and [illegible] milk at 5 cents [illegible] 210 [illegible] year [illegible] $30 per cow a year. Fifty cents would free that cow and probably turn a loss into a bank account.

THE TICK IS A MILK THIEF.

ONE-THIRD OF THE JOB ALREADY DONE

The people in the white areas on the map south of the tick line have gotten together to dip their cattle and thus have made possible profitable dairying and beef-cattle raising on their farms. What they have done, your county can and will do.

FOR PROSPERITY DIP THAT TICK!

A GOVERNMENT POSTER WIDELY DISTRIBUTED IN THE SOUTH.

The complete extinction of the tick is only a question of time.

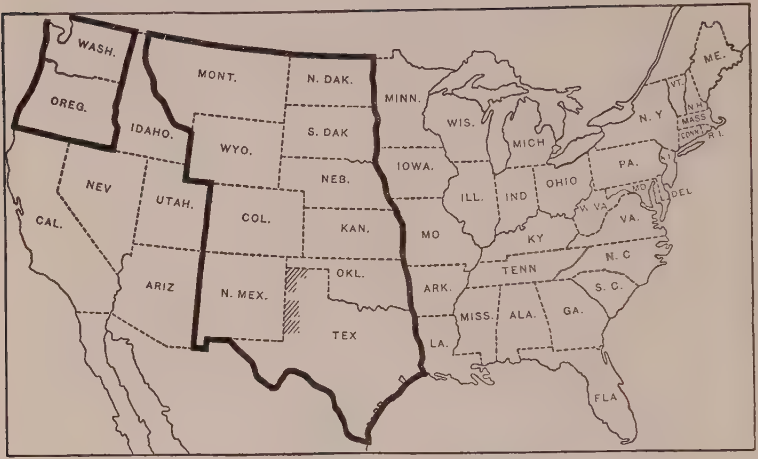


FIG. 1.—THE CONQUEST OF CATTLE SCABIES.

The area within the heavy lines was under quarantine in 1905. To-day all that is left of this quarantine is the shaded portion in Texas.

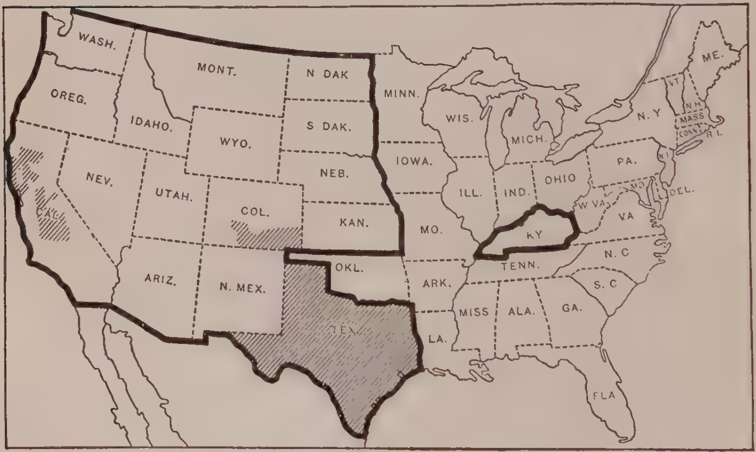


FIG. 2.—THE VANISHING SHEEP SCABIES.

In 1903 all the territory within the black lines was quarantined for this disease. The quarantine has now been reduced to the shaded areas.

until field experiments by the Bureau of Animal Industry in 1889 and 1890 had demonstrated that the tick played an essential part in the dissemination of splenetic or Texas fever that the true importance of the insect was realized and scientists began to attack with vigor the economic problem that it presented. The experiments referred to are especially noteworthy, not only because of the impetus which they gave to the war upon the tick, but because they were the first to demonstrate that certain diseases can be conveyed to one victim from another only through the intervention of some animal or insect, acting as an intermediary host. The public has since been familiarized with this principle through the subsequent discovery that mosquitoes spread malaria and yellow fever and rats the bubonic plague. It is common knowledge that in the case of yellow fever the practical application of this knowledge has made possible the digging of the Panama Canal without the appalling sacrifice of human life which would otherwise have been inevitable.

The evil that the tick does is, however, by no means confined to the spread of splenetic fever. In the course of the many years that it has flourished in the South, cattle have been developed which are to a great extent immune to the fever. They suffer from the tick, however, in a multitude of other ways. Ticks swarm upon immune cattle as freely as upon nonimmune, and though they do not give them fever they suck the blood that should go to the making of beef and milk. The fact that "ticky" beef cattle sell for less per pound than tick-free cattle has already been pointed out. They also weigh less. Furthermore, because of the danger of fever, it is impracticable to import purebred stock from tick-free sections in order to grade up the herds. In short, a ticky steer is too often a scrawny, unprofitable scrub, whose owner can scarcely be expected to compete with cattle raisers elsewhere. The dairyman is in no better position. Experiments have shown that the milk production of a herd infested with ticks is from 18 to 40 per cent below what it should be, the exact percentage, of course, depending upon the degree of infestation. The value of the hides is also materially reduced by the punctures made by the ticks in their search for blood.

To offset these and similar facts there is nothing but the trifling cost and trouble of systematic dipping. In several counties in Alabama which were freed from quarantine on December 1, 1915, it was found that the cost of eradication to the county had ranged from 18 to 50 cents per head of cattle. The increased value of each animal is greatly in excess of this modest sum, one inquiry into this point having resulted in an estimated average increase of $9.76 per head.

The benefits to the South, and indeed to the entire country, of tick eradication are not, however, to be measured by the increased value of a few hundred thousand cattle. The need for diversification has long been apparent in the South, but diversification in agriculture rests, to an important extent, upon profitable live stock. With the tick the raising of live stock is not an attractive enterprise; without the tick there is no reason why the cattle industry in the South should not attain a magnitude which will utterly dwarf its present proportions. Because of its vital effect upon the prosperity of the whole Nation, and in particular upon the meat supply, tick eradication is not a matter that should be—or that, in fact, is being—left to one section to deal with. State and Nation are cooperating with the individual counties in driving out the pest. Last year was the most successful one in the history of the work, and there is every reason for confidence that the country will soon be freed from this incubus of long standing.

Like the tick, the mite that is the cause of the disease variously known as scabies, range itch, cattle itch, and mange is being successfully attacked by dipping infested stock in solutions that destroy the parasites but do not injure the animals. The work of eliminating this mite has, however, been brought nearer completion than in the case of the tick. Of the 1,269,844 square miles placed under quarantine for scabies of cattle on June 1, 1905, there now remain less than 20,000, located in the northwestern corner of Texas. (Pl. XVIII, fig. 1.) Although there is no doubt that this comparatively small area will be cleaned before long, there will still be need of rigid inspection of cattle at market centers in order to prevent the spread of sporadic outbreaks.

Scabies is a contagious disease conveyed by either direct or indirect contact with infested animals. The parasite that causes the disease in its common form lives on the surface of the skin and its biting leads to great irritation and itching. It also multiplies with astonishing rapidity, so that an extraordinary number of the mites may often be found on a small area of skin. When the parasites have spread over a large surface of the body, the afflicted animal loses flesh and becomes so weak that its powers of resistance are much impaired. This condition leads to an even more rapid multiplication of the mites. Death sometimes results, especially at the end of severe winters or with young stock. Mature animals in good condition do not appear to be so susceptible.

The parasite of scabies in cattle is closely allied to that which causes a similar disease in sheep. Against both the most effective measure is a bath in a lime and sulphur solution, administered in much the same way that cattle are dipped for the tick. At the present time the territory affected by this sheep disease covers the better part of Texas and California, with a few counties in Colorado—in all an area of about 324,827 square miles. (Pl. XVIII, fig. 2.) In 1903, when the work of eradicating the disease under quarantine was first taken up, the quarantined area was 1,784,596 square miles. The subsequent freeing of nearly 1,500,000 square miles has been accomplished by the cooperation with the Federal Government of the State legislatures, the live-stock associations, the transportation companies, and the banking interests.

Cooperation of this kind, it may be said, is an absolute essential to success in the elimination of contagious animal diseases of this character. In the campaign against the foot-and-mouth disease it was demonstrated that those communities in which cooperation was the most thorough suffered the least, and in the eradication of the tick permanently successful results have been obtained only in those counties in which public opinion earnestly indorsed the enforcement of the necessary regulations for systematic dipping.

There is another and important class of diseases for which the remedy lies not in the destruction of parasites but in the conferring of immunity upon the susceptible animals by the use of vaccines and serums. Prominent in this class are blackleg and anthrax. Because of its economic importance at that time in France, Pasteur devoted much of his time to anthrax, and his experiments were among the first to demonstrate the possibilities of immunization in the control of human as well as animal diseases.

Anthrax affects both man and animals, but it is most common in cattle, horses, mules, and sheep. In this country its ravages occur chiefly among the first, because the most severely infected regions are in the South, where comparatively few sheep are kept. The disease is most prevalent in wet, low places; in particular, the delta lands of the Mississippi Valley appear to be thoroughly permeated with it. Animals contract it almost invariably by grazing on infected pastures, in which the virus persists with extraordinary tenacity. The germs, or their spores, maintain their existence under the most unfavorable conditions, and there are instances on record in which herds have become infected by pastures which had been allowed to remain idle for years in the hope of ridding them of the disease. Obviously, this greatly increases the difficulty of eradication. It is, in fact, believed that the only possible way of controlling the disease is by the general use of the protective vaccine.

In this treatment great strides have been made since Pasteur began his experiments in 1881. Though the vaccine that he developed proved its usefulness at once, the disease disappearing from several regions in which it had formerly worked much destruction, there were, nevertheless, a number of grave objections to its use. The keeping qualities of the vaccine were poor, its strength uncertain, and, in consequence, there was a double danger in its use; it might be so weak that it exerted no beneficial effect, and it might be so strong that it conferred the disease instead of immunity upon the animal. The latter was especially liable to be the case when the disease had already made its appearance in the herd and the animal was exposed to infection from outside sources as well as to the vaccine.

These objections led to the development of a serum made from the blood of hyperimmunized animals; that is to say, animals which, by repeated injections of the vaccine, had developed in their blood extraordinary resistance to anthrax. Serum obtained in this way possesses not only a preventive but a curative value, and in a few instances has been used with success in the treatment of anthrax in man. With animals its use is recommended whenever the disease has already appeared in the herd. In such cases, however, the dose should be repeated at intervals of from 3 to 5 weeks. Where, on the other hand, there is no danger that stock has as yet been exposed to the infection, the use of the so-called simultaneous method is to be preferred to either the serum or the Pasteur vaccine. This method consists of simultaneous injections of the serum and of a standardized spore vaccine recently developed by scientists in the Bureau of Animal Industry. The great advantages possessed by this vaccine are its superior keeping qualities and the accuracy with which the strength of the dose can be gauged. In consequence, a greater and more lasting immunity can be conferred upon the animal with less risk.

Anthrax and blackleg, sometimes called symptomatic anthrax, are so similar that until a comparatively short time ago they were not recognized as distinct diseases. The two are, however, caused by different germs and protection against one does not imply protection against the other. As a matter of fact, however, the two diseases rarely occur in the same territory, the greatest losses from blackleg taking place on the large ranges in the West and Southwest, while anthrax, as has been said, is particularly prevalent in the low-lying sections of the South.

Like anthrax, however, the only practical method of controlling blackleg is by preventive vaccination. The disease is so very generally fatal that attempts at treating the stricken animal by bleeding and forced exercise usually succeed only in spreading a wide trail of infection over the neighborhood, without the least benefit to the victim or its owner. Vaccination, on the other hand, has resulted in reducing the loss from this particular disease to less than one-half of 1 per cent. In infected regions where vaccination is not practiced the loss of cattle through blackleg frequently exceeds that from all other causes combined, and in some sections has amounted to 10 per cent of the annual calf crop. A further argument for the use of the vaccine—if one were needed—is the fact that the disease shows a marked preference for high-grade stock and for animals in good condition. The money losses from it are, therefore, high in proportion to the number of animals killed, and vaccination becomes a desirable and economical form of insurance. That this fact is well recognized is shown by the fact that since the Bureau of Animal Industry began the distribution of blackleg vaccine 18 years ago 24,000,000 doses have been sent out, and it is probable that at least 20,000,000 animals have been vaccinated.

Vaccination for such diseases as blackleg and anthrax serves a double purpose. It not only protects the inoculated animal but it prevents that animal's assisting in the spread of the disease. Despite the discouraging persistency with which blackleg and anthrax spores cling to infected pastures, it is obvious that with the gradual immunization of all susceptible animals their chief opportunity for reproduction will be gone and that in time they will virtually cease to exist—as factors of economic importance, at least. It is to the interest of every stock owner, therefore, not only to use these preventive measures himself but to encourage his neighbors to do so also.

It is not, however, every disease that can be guarded against in this way. Among cattle diseases contagious abortion is in economic importance second only to tuberculosis, and this has so far resisted all attempts to deal with it by means of serums or curative agents of any sort. Up to the present the only known means of combating the disease are thorough disinfection of both premises and animals and the segregation of infected stock.

In the table printed on page 160 the annual losses from contagious abortion have been placed at $20,000,000. It is, however, difficult to obtain exact figures on this disease, and it is not improbable that the losses are actually much greater than this estimate. One authority, indeed, has placed them at $10,000,000 for the dairy herds of New York State alone. This disease is an insidious one. A cow may have it for several months without revealing any symptoms, and in the meantime the infection may spread through the entire herd. Reproduction is then seriously interfered with, and the calves that are born are frequently victims of white scours and pneumonia. The cows also may suffer in a number of ways as the direct result of the contagion.

To guard against this danger scientists recommend a thorough system of disinfection, preferably under the supervision of a veterinarian, the cost of which is estimated at $4 a year for each animal. The whole subject of contagious abortion is, however, one for further study.

Unlike most animal diseases, tuberculosis attacks not only the prosperity but the health of the country. The importance of its elimination, therefore, can not be measured by the money loss that it causes, though this is exceeded only by that due to hog cholera and the cattle tick. Unfortunately no real success has as yet been attained in rendering cattle immune to the disease, and the only means that can be recommended for its suppression are sanitation, the segregation of all infected animals, and the slaughter of advanced cases.

The chief danger to mankind from tuberculosis in cattle arises from the fact that the contagion may be transmitted in the milk of infected cows. Thorough pasteurization is, of course, a safeguard against this, as it is against other dangers that lurk in raw milk, but pasteurization is neither always thorough nor always practiced. The meat from tuberculous animals, though it is less likely than the milk to convey the disease, is also regarded as dangerous, and for this reason the carcasses of such animals, when slaughtered under Federal inspection, are condemned in whole or in part as unfit for human food.

Tuberculosis is, in fact, the chief cause of the condemnation of meat under the Federal meat-inspection law. During the fiscal year ending June 30, 1915, approximately 58,000,000 cattle, sheep, swine, and goats were slaughtered under Federal inspection. Of these, 587,760, a little more than 1 per cent, were found to have tuberculosis in a stage sufficiently advanced to necessitate the condemnation of the carcass, either in whole or in part. These figures, however, do not accurately represent the real prevalence of animal tuberculosis in the United States. Only about 60 per cent of the meat annually consumed in the country is slaughtered under Federal inspection, the great bulk of the remainder being furnished by animals killed in local abattoirs from which it is impossible to obtain accurate statistics. It is, however, well known that animals strongly suspected of having tuberculosis often are not shipped to Federal-inspected slaughterhouses, but are killed elsewhere for the express purpose of escaping condemnation. It is obvious, therefore, that if one could obtain figures for the entire country the percentage of tubercular animals would be higher than is indicated by the reports of the Federal meat-inspection service.

Though it affects all classes of cattle and is common among hogs, tuberculosis works the worst havoc in dairy herds. A summary made by Dr. Melvin of tuberculin tests covering a period of 15 years showed that out of 400,000 cattle tested 9.25 per cent reacted. From this it was concluded that about 10 per cent of milch cows and 1 per cent of beef cattle were affected. In certain sections of the country a much higher percentage has been found. In the region around San Francisco Bay, for example, Dr. Ward, of the Bureau of Animal Industry, found that 31 per cent of 1,022 cattle reacted to the test. In another case an even higher percentage was found in range cattle in California. In general, however, it may be said that the disease is more prevalent among cattle which are comparatively closely confined, like purebred stock and dairy herds, than among those which have plenty of open air. Possibly, for this reason, tuberculosis appears to be more general in the neighborhood of large cities. It is also, as has been said, common among hogs, but as the disease develops very slowly these animals are usually slaughtered before it has had an opportunity to render the entire carcass worthless for food.

The slow development and the insidious character of tuberculosis have rendered the tuberculin test of great importance in its control. This fluid contains the product of the tubercle germs without the germs themselves. It can not, therefore, convey the disease, and when injected into a healthy animal produces no noticeable effects. With tubercular animals, however, it causes a brief attack of fever which is known as the reaction and is regarded as conclusive proof of the existence of the disease, even when it is impossible to detect other symptoms.

A cow that reacts to this test should be at once removed from the rest of the herd and her milk, if used at all, thoroughly pasteurized. Her attendant should not be permitted to care for healthy animals, and if she gives birth to a calf, it should be removed immediately and brought up by hand. If allowed to remain with its mother it will soon contract the disease. In many instances, of course, these precautions involve an expense which makes it simpler to kill the tuberculous cows at once, and this should always be done in cases in which the disease is well developed. It occasionally happens, however, that with good care the animal's natural resistance is sufficient to overcome the disease.

Altogether 20 out of every 1,000 cattle die each year from disease, the great majority from those maladies which have been discussed—tuberculosis, contagious abortion, anthrax, blackleg, scabies, and the tick. As has been seen, some of these it is quite possible to eradicate completely by systematic cooperative work; the damage done by others can be reduced to a minimum by proper attention to sanitary and precautionary measures. This is true also of another disease, one that in all probability is responsible for a greater economic loss than any other in the long catalogue of animal plagues—hog cholera.

The annual loss from hog cholera has been put at $75,000,000. It varies greatly, however, from year to year, and in certain localities has at various times threatened to put a complete stop to the industry of hog raising. Ninety per cent of the hogs that die before slaughter are, it is believed, killed by this disease. In addition it is, next to tuberculosis, the chief cause of the condemnation of meat in Federally-inspected slaughterhouses, the entire carcasses of more than 100,000 hogs having been condemned on this account during the fiscal year 1915.

With anthrax and blackleg hog cholera is in the class of diseases which can be controlled by the use of preventive vaccines or serums. The investigations of the Department of Agriculture, which began as early as 1878, have resulted in the discovery of an anti-hog-cholera serum, which is now manufactured commercially and used extensively throughout the country. Its value is best indicated by the results of field tests begun by the department in 1913 in Dallas County, Iowa, Montgomery County, Ind., and Pettis County, Mo.

In 1912 a total of 221,682 hogs were raised in these three counties, of which 63,078 died of cholera, or more than 28 in every hundred. In 1913, 304,514 hogs were raised, the total loss was cut nearly two-thirds, and the percentage of loss reduced to 7.7. Encouraged by a further reduction in 1914, the farmers of these counties raised in 1915 389,173 hogs, of which only 6,665 were lost. In three years the loss per hundred had been lowered from 28.4 to 1.7. In the same period the production of hogs had been increased by more than 75 per cent.

It is hardly possible to ask for a more striking demonstration of the economic benefits of scientific research. It would be a mistake, however, to suppose that these experiments herald the immediate extinction of hog cholera. To a greater or less extent hog cholera exists wherever hogs are raised. To obtain the best results not only are proper preparation and administration of the serum necessary, but community action is essential in order to remove the danger of new infection from neglected sources. The immensity of the problem is such that it can be attacked successfully only when the States and local organizations are in a position to cooperate with the Federal Government. The first and most important steps have been taken already, however, and the rest appears to be largely a matter of time and education.

In addition to the specific diseases mentioned already, there is a varied host of parasites which annually bring death or serious injury to thousands of animals. Scientists recognize approximately a thousand different varieties of these parasites, the control of each variety being a separate problem in itself. In the report of the Secretary of Agriculture the annual loss from this cause, exclusive of that due to the cattle tick and the scabies mite, is placed at $5,000,000. It is quite probable, however, that the actual harm done is greatly in excess of this estimate, for in many cases the farmers themselves are ignorant of the reasons for their losses. It is certain, too, that the prevalence of parasites is one of the main difficulties experienced by stock raisers in tropical countries. The effect of the cattle tick upon agriculture in the South, for instance, has been pointed out already, and the tick is only one particularly well-known example. Among the other more common parasites may be named stomach worms in sheep, and especially in young lambs, lung worms in cattle, tape worms, and "ox warbles." They are usually acquired through the use of infected pastures, and for that reason farm animals are more apt to suffer than those on the range. An increased realization of the economic importance of these destructive agents has led in recent years to careful study of their habits and of the most practical means of combating their attacks. The possibilities for research in this field are, however, almost illimitable.

Poultry diseases are responsible for another important item in the annual loss of food. At the present time poultry products equal in value half of the cotton crop. The industry, however, pays an annual tribute to disease of $8,750,000. Roup, diphtheria, and bird pox sweep through many flocks, blackhead has had a profoundly depressing effect upon the turkey industry, tuberculosis and fowl cholera are common, and white diarrhea, which is transmitted through the egg, has been known to kill every freshly hatched chick on the premises it attacks. The spread of these and other infections has, in some ways, been favored by the substitution of incubators and brooders for the hen, which has resulted in bringing together larger numbers of young chickens than was formerly the case. The necessity for the proper care, housing, and feeding of poultry is, therefore, becoming more and more evident. The relatively short life and small value of the individual bird make attempts at treatment so expensive that they are frequently impracticable and the poultry keeper's chief protection is to be found in surrounding his flock with as healthy conditions as possible.

This, however, applies to all branches of animal husbandry. Enough has been said to indicate that it is not unreasonable to expect that the near future will see a material reduction in the ravages of the chief animal plagues. Disease, however, will always exist in animals, as in man. The Federal Meat-Inspection Service recognizes 42 distinct groups of diseases or conditions which make the meat of the affected animals dangerous or abhorrent. It is not at all likely that science will ever be able to do away with all of these. It has, however, abundantly demonstrated its ability to transform the whole aspect of the stock industry. The weight of hog cholera, tuberculosis, and the cattle tick now lies heavily upon the land. Not only do they withdraw each year from human use animals valued at many millions of dollars, but they discourage the production of other wealth. The benefits that are to follow their eradication are incalculable.

THE BOYS' PIG CLUB WORK.

By W. F. Ward, *Senior Animal Husbandman, Animal Husbandry Division, Bureau of Animal Industry.*

BY means of the boys' pig clubs thousands of boys are being interested and instructed in hog raising, to their pleasure and profit and to the benefit of the community and the country. The influence of such work toward more successful stock farming, good citizenship, and replenishing the nation's larder can not yet be measured.

The first boys' pig club was organized in Caddo Parish, La., in the fall of 1910 with a membership of 59 boys. The organization was directly due to Mr. E. W. Jones, who was superintendent of the rural schools of the county. The pig-club work was outlined somewhat similarly to the corn-club work and was distinctly an outgrowth of it. It was an economic necessity among some of the corn-club members, as it gave them an opportunity of marketing some of their corn through a pig and further encouraged the diversification of crops which was being urged upon the boys as well as upon the farmers.

The work spread rapidly in Louisiana, under the direction of the college officials. In 1912 it was taken up in cooperation with the Bureau of Animal Industry, since which time it has been conducted cooperatively by the bureau and the State agricultural colleges.

OBJECTS AND PLAN.

The objects of the pig-club work were to interest the boys in swine production, to teach them improved methods of raising and fattening hogs, the value of forage crops, sanitation, good management in handling swine, methods of home curing of meats, and, by means of the pig-club work, to give the boy a broader and better view of farm life, thus making of him a better future citizen.

The pig-club work done by the department is carried on in cooperation with the State agricultural colleges, each of these forces contributing toward the expense. An agent, who is thoroughly acquainted with the practical side of swine raising and has had the benefits of animal husbandry training in an agricultural college, is placed in a State to work under the supervision of the director of extension or his representative in the organization of these clubs. The county is the unit used in organizing the clubs, and where there is a county agent he is usually responsible for the organization and proper conduct of the club work in the county. In counties having no agent or agricultural adviser, some teacher, banker, or other influential person is usually selected as a county leader. The State pig-club agent frequently visits the county leader to advise with him, and together they visit as many of the club members as possible. Personal contact with club members is essential if greatest good is to be accomplished, but as the time of the State pig-club agent is limited, it devolves upon the county leader to make most of the personal visits to the club members.

The State pig-club agent attends public meetings, teachers' institutes, picnics, etc., at which he may use lantern slides, charts, or the pig-club motion-picture film in explaining the manner of organizing the clubs, conducting the club work, and raising hogs under improved conditions. Pig clubs may be organized in several communities in a county, and all of these make up the county association.

The members are required to secure a pig, and feed and care for it according to instructions, keeping complete records of the amount of feed consumed, the gains in weight, cost of the gain per pound, breeding records, etc. At the end of the year the members are required to send reports to the State pig-club agent. Wherever possible the club members must show their pig at the county fair or special exhibition, and the winners at the county fairs usually are required to show their pigs at the State fair.

The cooperation of the school-teachers, bankers, merchants, and other people who can aid in the work is solicited, and the success usually is in proportion to the amount of cooperation received from such people. Teachers often choose pig-club work as a means of getting in closer touch with the pupils and parents, and often are rewarded amply by the increased interest with which school patrons view such activities. The same can often be said of the county agent or adviser. One such county agent in North Carolina stated he had failed to obtain the interest and support which he felt should have been accorded him and could not get the desired response from the people of his county until he started the pig-club work. He further stated that this work did more to put him in close touch with the rural and town people than any other one agency.

The pig-club work means much more than raising a few hogs, making some money, and winning a few prizes. The educational feature is largely responsible for the position which it occupies with the boys, the community, or in the State. As an illustration, a county school superintendent of Texas voluntarily writes the following statements:

> From four years' records I find the pupils belonging to the various clubs have made an average grade on all subjects, except spelling and composition, of 11 per cent more than the children not doing club work. The club members made a general average of 16 per cent more on spelling and 23 per cent more on composition than the other boys and girls.
>
> The club pupils have been active and inspired to do better work, and by this have created and sustained a desire to make researches for new things. Very few club boys and girls in the rural schools of this county stop school, and when they do so it is not of their own choice. There are more than 4,000 boys and girls in the rural schools of this county, and of the number of suspensions and expulsions not one has been a member of the clubs.
>
> Of the club children there is better attendance at Sunday school by 7 per cent and of church services by 5 per cent than among the other children.
>
> We offered a prize on sanitary conditions, and the contest was a heated one, but in every instance the schools doing club work were in the lead, and the prize was won by a school conducting club work and a social center movement.

In addition, the work of the pig club has interested many a boy in study who either disliked school work or was a laggard in his classes. This is well illustrated in North Carolina by two boys who were somewhat dull and who disliked study and books in general, with the result that they always stood near the foot of the class, despite the efforts of teacher and parents. Both boys joined the pig club, secured pigs, and started the work, but were told that to carry on the work they must read all instructions furnished either in the bulletins, circular letters, or personal letters, and must keep accurate records of all their operations. Each became interested in the growth of their pigs to such an extent that he read everything sent to him and finally began reading and studying other matter, with the result that these boys were among the best pupils at the close of the school year.

In Nebraska club work plays an important part in the agricultural education of the pupils in the rural schools. All of the children who belong to a club and carry out one definite project, as the canning-club or pig-club work, are excused from the written examinations in agriculture.

In Washington State one finished club-project is permitted to count 50 per cent of the agriculture or home economics grade, and both the project and the class work are judged accordingly.

Another feature of the boys' work is its educational value to the parents. Many parents reluctantly have permitted their children to join a club; nevertheless, they have finally admitted that they received as much or more good from the work than their boy did. Many farmers have changed absolutely their methods of handling hogs since seeing the result of the son's work with one or more pigs. It has also induced many farmers to purchase for the first time some registered live stock.

The pig-club work is divided into two main sections—that of fattening a meat hog for home consumption or market and that of raising a litter of pigs. The hog-fattening work may end with the sale of the animal or it may be carried further and embrace the ham and bacon club idea, which deals exclusively with methods of slaughtering and home-curing the meat. In such a case a ham and a piece of bacon cured under instructions furnished must be shown at the county fair or exhibition the following year.

It is advisable for members who have had no experience in handling live stock to purchase a grade pig, raise and fatten it for market or slaughter according to instructions, and the following year with the money obtained to secure a grade or purebred gilt and take up hog breeding. This enables a

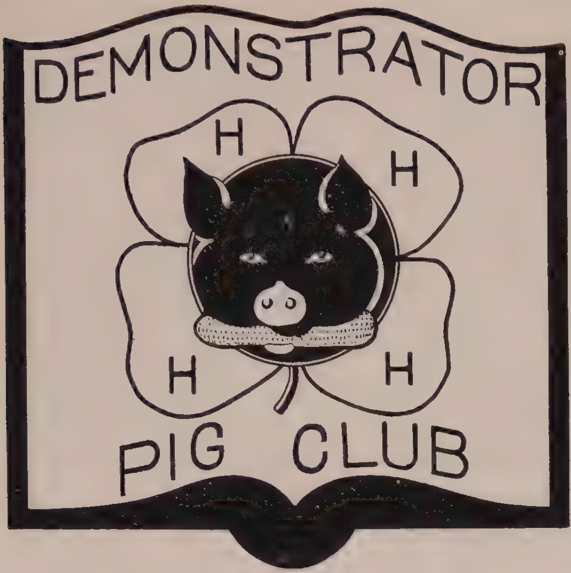


FIG. 1.—PIG-CLUB EMBLEM.

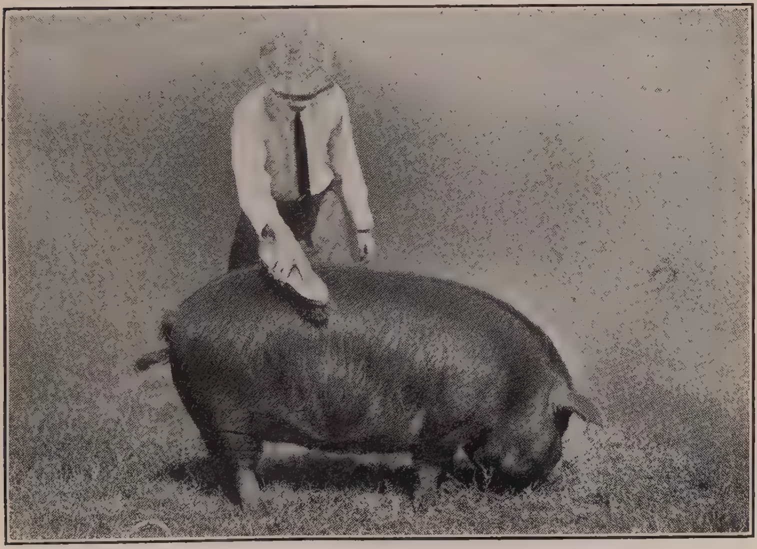


FIG. 2.—PREPARING THE PIG FOR THE SHOW RING.

Leland Hessar, of Delhi, La., is shown with his pig. The pigs are all carefully groomed before entering the ring.

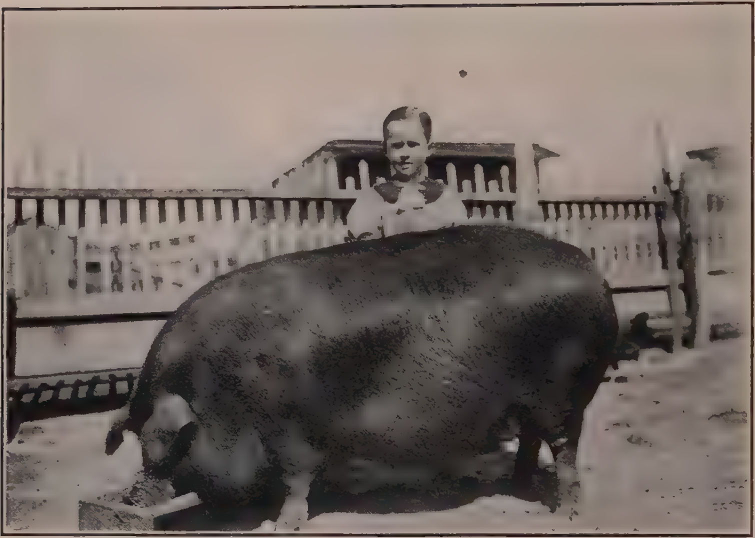


FIG. 1.—A WINNER IN TEXAS.

Jack Starr, of Midland, Tex., and his registered Duroc-Jersey pig. Age of pig 11 months; weight, 450 pounds.

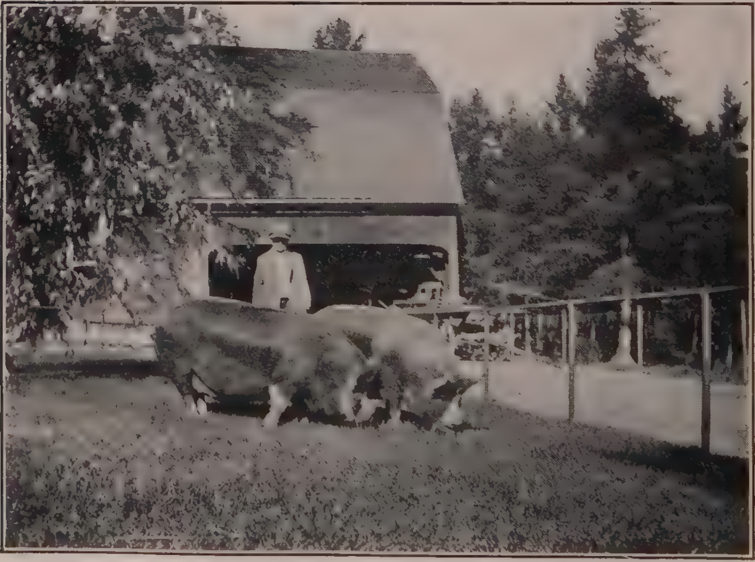


FIG. 2.—THE MASSACHUSETTS PIG CLUB CHAMPION AND HIS PIGS.

Willard Buckler, of Pittsfield, Mass., fed these pigs a standard grain ration while they grazed rape and secured during the last 92 days a gain in weight of 421 pounds, or an average of 2.28 pounds per pig per day.

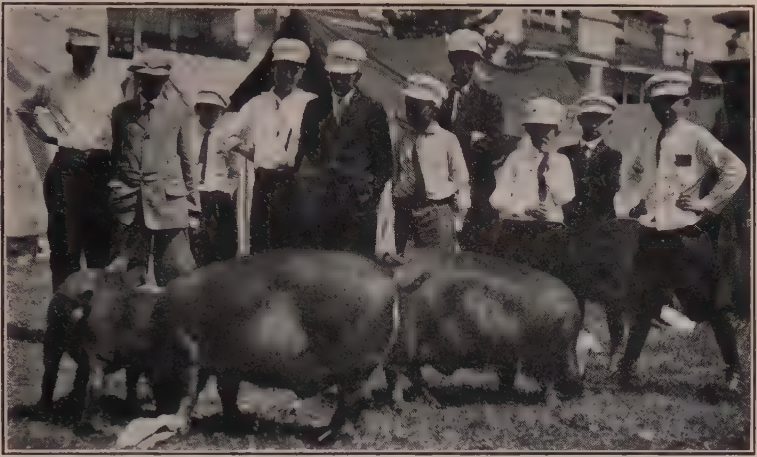
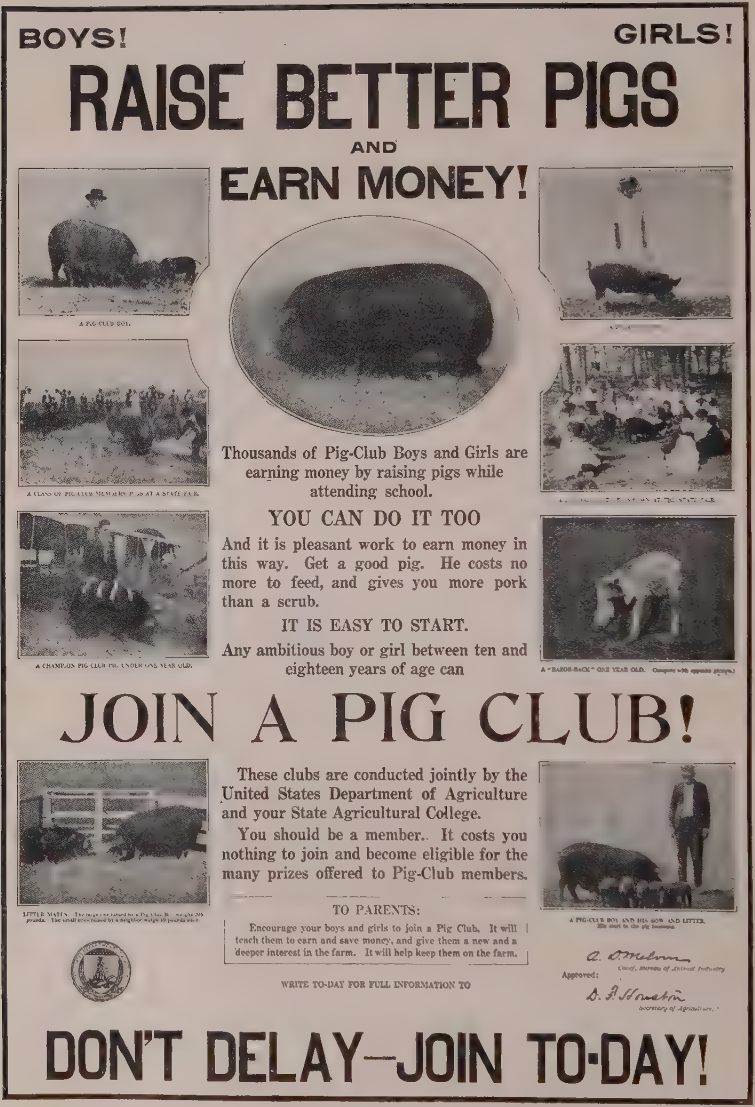


FIG. 1.—PIG-CLUB BOYS AT THE KENTUCKY STATE FAIR.

All three of the hogs are litter mates. The large ones were raised by pig-club boys and the smaller by a farmer. The weights are 215, 220, and 55 pounds, respectively. Good care and feeding make pigs grow.

FIG. 2.—A SOW AND A PROFITABLE LITTER.

John Robert Reid's Duroc sow and litter exhibited at the Louisiana State Fair in 1915. He refused $400 for the lot.



BOYS! **GIRLS!**

RAISE BETTER PIGS

AND

EARN MONEY!

A PIG-CLUB BOY.

A CLASS OF PIG-CLUB MEMBERS' PIGS AT A STATE FAIR.

[illegible] AT THE STATE FAIR.

Thousands of Pig-Club Boys and Girls are earning money by raising pigs while attending school.

YOU CAN DO IT TOO

And it is pleasant work to earn money in this way. Get a good pig. He costs no more to feed, and gives you more pork than a scrub.

IT IS EASY TO START.

Any ambitious boy or girl between ten and eighteen years of age can

A CHAMPION PIG-CLUB PIG UNDER ONE YEAR OLD.

A "RAZOR-BACK" ONE YEAR OLD. (Compare with opposite picture.)

JOIN A PIG CLUB!

These clubs are conducted jointly by the United States Department of Agriculture and your State Agricultural College.

You should be a member.. It costs you nothing to join and become eligible for the many prizes offered to Pig-Club members.

LITTER MATES. The large one raised by a Pig-Club B[illegible] weighs 205 pounds. The small ones raised by a neighbor weigh 49 pounds each.

A PIG-CLUB BOY AND HIS SOW AND LITTER. His start in the pig business.

TO PARENTS:

Encourage your boys and girls to join a Pig Club. It will teach them to earn and save money, and give them a new and a deeper interest in the farm. It will help keep them on the farm.

WRITE TO-DAY FOR FULL INFORMATION TO

Approved:

A. D. Melvin
Chief, Bureau of Animal Industry

D. F. Houston
Secretary of Agriculture.

DON'T DELAY—JOIN TO-DAY!

THE PIG-CLUB POSTER.

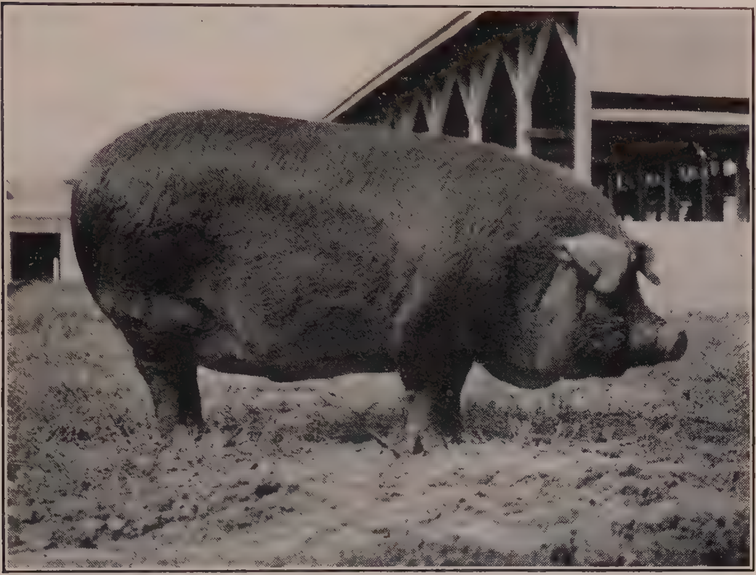


FIG. 1.—A MARKET-TOPPING BARROW AT THE OKLAHOMA STATE FAIR.

This pig was raised by Hatten Travis, of Stevens County, Okla., and weighed 430 pounds at 11 months old. He made a net profit of $9.01, besides prize money.

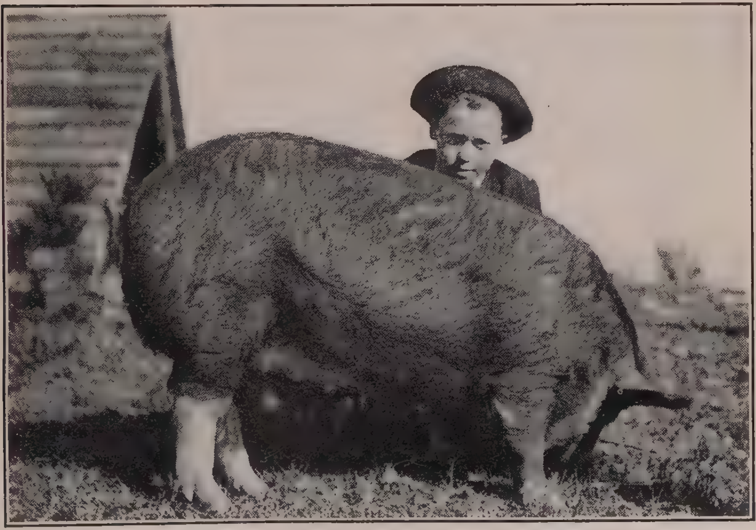


FIG. 2.—A NORTH CAROLINA PRIZE WINNER.

This pig was raised by Sam Paul Jones Yow and won at the Greensboro and Raleigh Fairs. She weighed 172 pounds at 5½ months old and the boy refused an offer of $50 for her.

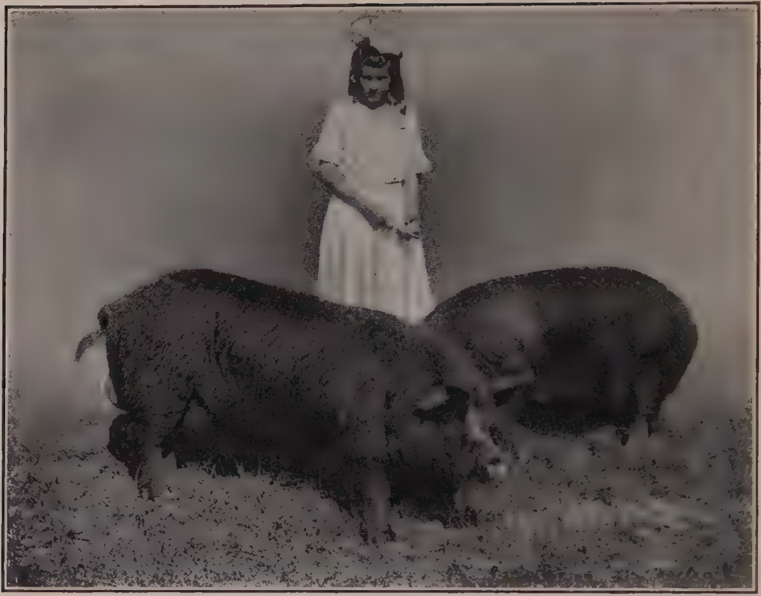


FIG. 1.—WINNERS IN THE 1915 GEORGIA PIG CLUB.

In 1914 this girl raised an excellent pig that weighed 493 pounds the day it was 10 months old. This year she won at the Whitefield County Fair with both registered pigs shown in this picture.

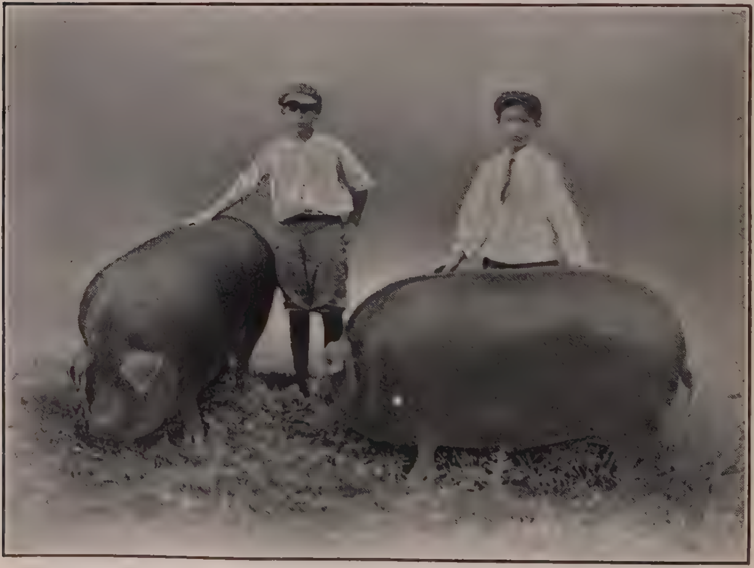


FIG. 2.—TENNESSEE PIGS WHICH MADE RECORD-BREAKING GAINS.

Duroc-Jersey litter mates 8½ months old raised by Leon Wootten (on left) and Jesse Loftis, of Lafayette, Tenn. These pigs had bluegrass and red clover pasture and were fed corn, shorts, bran, and tankage. The gains in weight cost 3 to 3½ cents per pound.

boy to get his first experience with a cheap grade hog, and he enters the breeding work with one year's experience in caring for a hog. This invariably results in the raising of a good hog or a litter of pigs.

FINANCING PIG-CLUB MEMBERS.

If a boy has money with which he can buy a pig, or if he can obtain work to earn money for such a purpose, it is always advisable to secure a pig in this manner. There are many worthy boys, however, who can not get money to buy a pig, but who can raise most of the feed for such a pig and can earn enough money to purchase the feed that must be bought. To aid such deserving boys several plans have been tried. At first some bankers thought it would be well to give pigs to some boys, but this is undesirable for several reasons; first, it is not good business policy; second, the pig will not be appreciated as much nor cared for as well as if he is bought; third, many other boys would hesitate about purchasing a pig, thinking that if they waited a pig might be given to them. This plan has been discouraged and others offered in its place.

In a number of counties in various States, banks, business firms, chambers of commerce, or individuals have set aside sums of money which can be loaned to reliable pig-club members who are first approved by the county agent or other responsible person, and who agree to follow all instructions of the pig-club agent, give a note for the pig payable at some future time at a small rate of interest, and agree to submit a final report of the year's work to the party lending the money, as well as to the pig-club agent. Many thousand dollars have been set aside for this purpose, and the money is being used most beneficially. On the note given by the boy is usually a statement signed by the parent to the effect that the parent gives his consent to this arrangement and will not claim any proceeds from the sale of the pig or its progeny. The matter is then handled in a purely business way, giving the boy a lesson in business transactions. Few banks require the parent to sign the note, making him responsible for the boy's debt. The boy is put upon his honor, and very seldom indeed does he betray the trust or confidence placed in him.

The best plan that has been tried is the "endless chain method," whereby the money which is made available for lending to pig-club members is used to purchase a number of good young registered gilts from reliable breeders. These gilts are lent to the boys recommended by the county agent or by a special committee for that purpose, with the distinct understanding that they are to be raised according to instructions furnished by the pig-club agent or county agent, and are to be bred to a registered boar of the same breed. When the litter is weaned, two choice gilts are to be returned to the man furnishing the sow, after which the sow and the remainder of the litter become the property of the pig-club boy. The two gilts are in turn lent to two other pig-club boys, and in this way the number of pigs is constantly increasing.

A form of agreement is used for making the contract with the boys. If the boy fails to fulfill any part of his contract the hog reverts to the original owner. The risk is sometimes borne entirely by the party furnishing the pig, while in other cases the contract states that if the sow dies another shall be furnished to the boy, and he shall be required to return either three or four gilt pigs from the first litter secured.

There are many advantages of this method of financing pig-club boys. A club can be started without a great outlay of cash, and it will grow automatically. A member does not have to borrow money to begin with, which is sometimes objectionable to the parents, for if the boy's pig should die he must obtain money to pay his note, whereas by the chain method he can have another trial. Community breeding can always be started in this manner, only one breed of pigs being furnished to the boys. An extra good boar is often provided, to which the gilts can be bred at a reasonable fee, which is seldom the case where community breeding is not conducted.

Many breeders have adopted this plan of providing breeding stock for club members, as it is usually a profitable transaction for them, and at the same time helps them in a business way. One chamber of commerce in Georgia has set aside money for the purchase of 50 gilts, and this number will increase automatically until good hogs will be found throughout the entire county. The plan also is being successfully carried out in Georgia, Alabama, Arkansas, Oklahoma, and Indiana. Further particulars can be obtained from the Bureau of Animal Iudustry.

PRIZES AWARDED.

The giving of large cash prizes is discouraged, as it has been found better to give a large number of small and useful prizes. In this way more interest is taken because more boys can win a prize. In Louisiana and Georgia the county pig-club winner usually is given a free trip to the short course at the agricultural college. All prizes, ribbons, awards, etc., are furnished by people or enterprises other than the Department of Agriculture. A national pig-club emblem has been designed for use by the pig-club members in the various States (see Pl. XIX, fig. 1). In most States a pin is awarded to each member completing his work and submitting a record of it.

SOME RESULTS OF THE PIG-CLUB WORK.

Up to July 1, 1915, the pig-club work was being conducted jointly by the department and the agricultural colleges of Louisiana, Alabama, Georgia, North Carolina, Kentucky, Indiana, and Nebraska. During the fall of 1915 it was taken up in Texas, Arkansas, Oklahoma, Massachusetts, California, and Oregon. The work will be extended to other States as fast as funds permit. During 1915 there were over 10,000 club members in the States named, of whom 5,827 were in Louisiana, Alabama, and Georgia, where the work has been in progress two years or longer.

Some trouble has been experienced in getting the members to keep complete records throughout the year. Inducements have been offered to members sending in complete reports, such as a year's subscription to one of the good swine papers, a free ticket to the State fair, or seed sufficient to plant a pasture and a small area in some forage crops for the pig; but while these have helped to some extent, the percentage of members sending in reports is smaller than it should be. It is hoped that the percentage will increase as the organization is improved from year to year.

The report in 1914 of the members in Alabama showed that the average number of pigs per member in the spring was 1.35 and the average weight was 34 pounds. In the fall the average number of pigs per member was 1.92 and the average weight was 126 pounds. The increase in the number of pigs per member was due to many sows farrowing a litter during the summer. and these young pigs in turn lowered the average weight of the pigs in the fall. The average daily gain per pig was 0.72 pound, made at a cost of $5.20 per 100 pounds. Of all the pigs raised by the pig-club boys in the various States in 1914, the average cost for each 100 pounds gain in live weight varied between $4.25 and $5.20. During that time the price of hogs ranged from $7 to $9 per 100 pounds, showing a good profit from the standpoint of the market hog alone.

In Louisiana, Alabama, and Georgia the average valuation of all members' pigs in the spring was $9.01, $5.50, and $11.26 per head, respectively, while the average valuation in December was $22.26, $17.14, and $43.60. The low valuations of the hogs in Alabama was due to the facts that about 80 per cent of them were meat hogs and that there were 21 litters of pigs included in the December valuation, which lowered the average. The valuation in December of the original pigs which started in the spring, along with their increase, was $27.28 per head. The high prices in Georgia were due to the fact that almost all of the pigs were registered. The average valuation of the Louisiana club members' hogs was $22.26, while the average valuation of the hogs of the State was $7.70.

COMMUNITY BREEDING.

For years the community breeding of live stock has been urged upon farmers, but with very little success. Although its value and advantages have been preached to them repeatedly, it has been difficult indeed to get a large number of men to all agree to raise only one breed of stock.

The advantages of community breeding have been emphasized to the boys, and strenuous efforts made to have it started, with the result that in many counties one breed of hogs has been adopted as the standard of the county, and that breed is being raised almost exclusively. In Faulkner County, Ark., where the purchase of pigs was financed by banks for 75 boys, 97 per cent of them had registered hogs of one breed, while in Sebastian County, Ark., 90 per cent of the 91 boys had registered hogs of another breed. There are several parishes in Louisiana and several counties in Alabama, Georgia, and North Carolina where the boys of a county are specializing in one breed. In such counties the best and most successful pig-club work is being done, because the boys raising pure-bred hogs almost exclusively can obtain breeding stock at home for less money, can secure better breeding stock because they have a greater number from which to select, and can sell many more hogs for breeding purposes, as each of those counties is becoming recognized as a breeding center for a certain breed of hog, and with such a reputation come increased orders for breeding stock. This is one of the great achievements of the pig-club work, and a success is being made by the boys where their fathers have failed. This emphasizes to the boys the advantages of cooperation, and after the one experience, as boys, it will doubtless be much easier to get cooperation among the members after they become men than it has been with the grown folks of the present day.

In many counties the four-club idea is being advanced among the young folk, and this usually embraces the pig club. In all States the boys are encouraged to plant some forage crops for their pigs and furnish them permanent pasture. If the boy can plant three or four kinds of forage on small areas the results are better and he learns much about the growing of such crops. This emphasizes the diversification idea to the boy, and he learns one of the lessons of good farming that often has been difficult for mature farmers.

EXHIBITS AT COUNTY AND STATE FAIRS.

The pig-club exhibits at the county fairs and the State fairs have been very valuable to the members from an educational standpoint. While the pig club was organized primarily for the benefit of the boys, the girls have not been excluded; good pig raisers some of them are, too, and it is not uncommon to see the prize awarded to a girl. This has been done repeatedly at the county fairs; Alice McCoy captured the prize at the Louisiana State Fair in 1914. In all three of the State fairs in North Carolina in 1915 a Tamworth pig belonging to Rachel Spees was the sweepstakes champion in the pig-club classes and won first prize in the open classes at every fair. In 1915, at the Georgia-Florida Fair, held at Valdosta, Ga., the pig-judging contest was won by a girl who was a pig-club member. When the small number of girl members is considered it is a question if they have not made as good or a somewhat better record than the boys. Often a girl will care for her pig better and more regularly and submit a better report than her boy competitor.

Previous to fair time lectures usually are given the members on fitting pigs for show. They are instructed how best to feed them during the last few weeks previous to showing, how to enter their pigs at the fair, how to trim their pigs' toes, trim out their ears, and scrub, brush, and oil them preparatory to entering the ring, and how to handle the pigs in the show ring. The members get experience at the county fairs and as a result usually have a very high-class exhibit at the State fairs.

Judging contests often are held for the members at the county and State fairs, and suitable prizes are given the winners. The boys who are showing pigs of their own soon become proficient in determining why their pigs win or lose in a contest. They learn much more quickly than the boy who neither owns nor shows a pig, because there is more at stake and the incentive to learn is greater.

In 1914 there were 185 hogs exhibited by pig-club members at the Louisiana State Fair. These hogs were judged and awarded prizes in the boys' pig-club classes, and those boys who conformed to the rules of the fair association were permitted to show their pigs in the open classes against the breeders' hogs from various States. Several prizes were won by the boys' pigs in such competition. After the fair some of the breeders asked the fair association to bar the boys from showing their pigs in the open classes during the following year. This request was immediately declined by the fair association. The fact that such a request was made was one of the greatest compliments that could be paid to pig-club work.

The largest exhibit of pig-club pigs ever made was at the Louisiana State Fair in 1915. There were 205 pigs shown by the members, and good ones they were, too. The competition was closer than ever before, as practically all of them were registered hogs, and they were in prime condition, showing that much care had been taken in fitting them for the fair. One of the outstanding features of the show was a Duroc sow and a litter of 9 pigs farrowed March 31, which were shown by John Robert Reid. The sow and every pig were good ones. In the pig-club classes he won the following prizes on his exhibit:

Best Duroc litter	$25
Best litter, any breed	20
First and second junior sow pig	13
First and second junior boar pig	13
Best Duroc sow	8
Sweepstakes sow and boar	40

In the open class against the breeders from various States he won second prize on Duroc sow with a premium of $3, making a total of $122 won at the State fair. He was offered $400 for the sow and litter, which he refused, and afterwards sold three of the boars and one gilt for $260. He values his sow and five gilts at $600. He submits the following statement of his year's work:

To value of sow and litter May 1, 1915		$200.00
To feed consumed to Nov. 1, corn, shorts, oats, and milk		100.00
To clover pasture for pigs		7.50
To labor		27.38
		334.88
By premiums won at fair	$122.00	
By sale of 4 pigs	260.00	
By value of sow and 5 gilts on hand	600.00	
		982.00
Net profit on work		647.12

It is possible that the boy has overvalued the gilts on hand at the present time, but if they were worth but half of the price named, it remains that he has made a phenomenal record. Such a record is rare, it is true, and perhaps does not illustrate the real value of the pig-club work; but it serves as an example of what can be accomplished. The real measure of success may be more nearly approached by stating that each year at the State fairs there are many pigs raised by the club members that change owners at prices varying from $30 to $75 a head.

At the 1915 Kentucky State Fair 18 boys showed their pigs. Gordon Nelson, jr., with his Poland China sow, won, in the pig-club classes, first for Poland China sow over 6 and under 12 months, and first on best sow in the exhibit, and won first in the open class. The sow also won first on the largest and most economical gains, having gained 192 pounds in 120 days. The barrows shown by the boys at the same fair sold for 25 cents a hundred pounds above the top of the Louisville market for that day.

At the Oklahoma State Fair there was one pig shown from each of 27 counties. This show was for market or fat hogs only. The pigs averaged 344 pounds at 10 months of age, and sold for 35 cents a hundred pounds above the top of the Oklahoma City market that day. They were bought by the two large packing houses located at that place. The buyers for these companies in judging the hogs declared that 11 of the 27 were of the perfect market type and but one hog of the entire lot scored below 90. Of the 27 hogs, 24 were barrows and were slaughtered, dressing out 84 per cent unchilled carcasses. The three sows were retained for breeding purposes, one of them afterwards being sold for $80.

The contest in Oklahoma was limited to one pig from each county, otherwise there would have been a much larger exhibit. This restriction will be removed in the future. The champion barrow of the show was a Duroc, 11 months old, weighing 440 pounds. He had the run of an alfalfa field for the first 116 days, and was then put in the dry lot and fed heavily for 4 months. At the show his total cost, including original cost, feeds charged at market prices, labor, etc., was $26.40, or 6 cents a pound. As he sold for 8 cents a pound, he made a net profit of $8.80, besides the prizes won. A litter mate of this pig was raised by a brother and ran a close race, weighing but 20 pounds less at the fair. The average cost of gains made by all the hogs was 5.7 cents a pound, which is very good when the fact is considered that this was a fat-hog contest and but little pasture or forage crops were used.

In North Carolina there are three State fairs, and at each of them was an exhibit of club members' hogs. These attracted a great deal of attention, as this was the first year such exhibits had been made at the fairs. The outstanding feature of the three fairs was a Tamworth gilt shown by a girl member of the pig clubs. This gilt was good enough to be the sweepstakes winner over all breeds in the pig-club classes at all fairs, and first in the open class at each of the three fairs. She will be kept for breeding purposes.

In Massachusetts, Indiana, and Nebraska pig-club contests were held in 1915 for the first time and met with good success. In the other Northern States previously mentioned the work has not been in progress long enough to have a contest, but excellent work is promised for the next year.

THE HOME CURING OF PORK.

In Georgia the ham and bacon club is a feature of the pig-club work where market hogs are raised. The members are instructed in the slaughter and home curing of meats, and accurate records are kept on the meat cured from each hog slaughtered. This work has interested the farmers to such an extent that many of them are slaughtering and curing their meat according to the instructions furnished to the pig-club members. Several of them have been induced to build a simple and cheap meat-curing house after plans furnished by the department, and to keep a record of the meat cured. Such a house costs about $100 and can be used in curing 20,000 pounds or more of meat at a very small cost and without any loss, if instructions are followed. The greatest drawback to producing meat for home consumption in the extreme south is the difficulty of getting the carcasses thoroughly cooled after slaughtering and the heavy losses often resulting from a sudden rise in the temperature. The use of such a meat-curing house as mentioned, or of the chilling rooms furnished at some of the ice-manufacturing plants in the South, completely eliminates such danger. In 11 counties in Georgia where systematic pig-club work was conducted, and the home curing of meats especially urged upon the farmers, there were 11,000,000 pounds of meat cured during the winter of 1914–15, and this meat was produced and cured at a good profit.

CAREERS OF THE PIG-CLUB MEMBERS.

Many of the pig-club members of former years are beginning a career as swine breeders, and a large percentage of the swine breeders of the future will doubtless come from the pig-club ranks. Two brothers in Louisiana who were successful pig-club members have engaged in the business of swine breeding and are distributing an attractive business card giving information about their herd.

A number of the pig-club boys of 1910 to 1913 have entered agricultural colleges, and many of them are paying part of their expenses with money earned while members of the club. One of the most encouraging facts revealed in pig-club work is that a large percentage of the boys join the clubs year after year and remain members until they enter college or it is necessary for them to quit for other reasons. An improvement in the pigs they show is seen each year, bearing out the idea that the club work is increasingly instructive year after year. Many times these older boys are made community leaders in the clubs. They are selected also for accompanying the cars of pigs to the State fairs, and have proved efficient in such responsible duties.

Little Jack Starr, of Midland, Tex., wanted to join the pig club, and purchased a pure-bred pig, the runt of the litter. The pig was 10 weeks old and weighed 29 pounds. When Jack tried to join the club he learned that as he was only 6 years old he was too young to be a member. Not discouraged, however, he fed his pig, according to instructions furnished, a properly balanced grain ration and let her graze Johnson grass, weeds, and volunteer oats for green feed. The few lice on her were quickly removed with an application of grease and kerosene thoroughly mixed, and they were kept off. A mineral mixture of charcoal, wood ashes, salt, and copperas was always kept before her. When the fair took place the pig, not quite 11 months old, weighed 450 pounds. Not being eligible to the pig club on account of his age, Jack entered her in five other classes, getting five blue ribbons and $25 in cash. With the money the pig won he purchased clothes, presents for his brothers and sister, and started a bank account. In November, 1915, nine pigs were farrowed by Jack's Perfection. Five have already been sold for future delivery at $12.50 each, and Jack is telling everyone he intends to be a stock farmer. Plate XX, figure 1, shows Jack with his pig.

The devotion of the boys to their pigs is shown by the act of one little boy, who, when his pig was awarded the prize, immediately broke into the ring and, oblivious of the crowd, hugged and kissed his pig; and by the letters from others whose pigs have died.

All of the pig-club work is not like a bed of roses, however; there are some thorns. Hog cholera causes a few losses; a train killed one pig, lightning another, and so on. Some of the letters are pathetic. One of the boys wrote: "You can mark out my name. I can't join the pig club. I ain't got no money to start with and no feed and no pig. I am in a bad fix for starting and I will have to give it up." A girl member writes: "I was interested in the pig-club work when I joined and was intending to do my very best, but I am mighty sorry that I will have to give it all up. My mother has gone to rest and left seven little children—the youngest 2 years—and they are all in my charge. You may know what a handful I have."

So letters come in to the pig-club agents, hundreds and thousands of them, some telling of the hopes of the future, some bubbling over with pride of achievements just attained either by the writer or the pig, and sometimes others written with many tears explaining that the pig—the one pig of pigs—had died and the writer was heartbroken and could not finish the report. Thus the pig-club agent is made the confidential friend to whom success or failure may be told, feeling that from him there will come consolation and, best of all, inspiration and encouragement for future efforts. The agent is a man with a big family, and to the pig-club members is the one person who knows just about all that can be known about swine; is adviser, teacher, confidant, judge, and jury of all that is good or bad in the boy's pig-club work.

SUMMARY OF ADVANTAGES.

The pig-club work may be said to exert a beneficial influence over the boy in the following ways:

(1) It gives the boy something to do at home that furnishes him pleasure, is of educational and financial benefit, and keeps him occupied at times when he might be in mischief or loitering in undesirable places.

(2) It develops the love of animals which is inherent in all boys, and impresses upon them the necessity of regularity in habits and prompt attention to details in the feeding and handling of live stock. Promptness and regularity in these matters will tend toward the same in other things.

(3) He learns valuable lessons in the feeding and breeding of animals, sanitation, the home curing of meats, and the business side of farm life. From these boys will develop many of the swine breeders of the future.

(4) He becomes thoroughly acquainted with some of the work of the Federal Department of Agriculture and the State agricultural college.

(5) From the work he learns how he can find information which he wants through the Federal or State bulletins, various textbooks, and agricultural journals, thus giving him a broad foundation for future study.

(6) It often stimulates a desire to attend the agricultural college or to make a closer study of farming operations.

(7) It aids the boy in an educational manner, especially in English, spelling, composition, and report writing.

(8) It enables the boy to make some money, which is usually invested in more stock, or goes toward getting a more liberal education.

(9) It is one of the principal means of interesting the boys and girls in farm life, with the result of developing better farmers, better homes and home living, and establishing a better rural citizenship.

A SUCCESSFUL RURAL COOPERATIVE LAUNDRY.

By C. H. Hanson, *States Relations Service.*

THE present organization of the rural community, when considered in relation to the farm woman, is far from satisfactory. The necessity of relieving the farm woman of some of her burdens and of shortening her hours of labor is too apparent to need demonstration. The remedy for this situation is not a simple one, nor is there a single solution for the problem, but Chatfield, Minn., has realized the importance of woman's place upon the farm and is making a long stride toward solving the problem by the successful operation of its rural cooperative laundry.

About 12 years ago the butter maker of the local cooperative creamery equipped a discarded churn for the washing of his laundry. The secretary of the company saw this equipment and conceived the idea of operating a rural laundry in conjunction with the creamery. Fortunately the stockholders of the creamery company, acting on the advice of the board of directors, were annually passing their dividends for renewals and improvements. In the spring of 1912, when public opinion began to crystallize in favor of the laundry, a meeting of the board of directors was called and it was decided to use $2,000 of these deferred dividends for the purpose of building an addition to the creamery, to be used as a laundry, provided that a corporation could be organized to whom the building could be rented. The presence of this surplus, $2,000, in the treasury, a prosperous and well-managed creamery, a strong and active farmers' club, combined with a favorable public sentiment in both country and town, made it possible for the secretary and his few coworkers to realize their dreams.

FARMERS' CLUB AIDS MOVEMENT.

A meeting of the Farmers' Club was called April 5, 1912, to discuss the subject of cooperation. It was at this meeting that the cooperative laundry idea first took definite form. To bring it before the public and enlist the good will of both town and country folk on so new and untried a venture, the club invited the entire community to a well-planned basket picnic to be held June 5. Amusements and lunch preceded a program which was largely devoted to an explanation of the laundry project. A vote was taken, the women voting as well as the men, to determine the sentiment of the community on the establishment of such a laundry, and the vote was so overwhelmingly in favor of the proposition that the Farmers' Club promptly called a meeting to promote the enterprise. The appointment of a committee to study other laundries, the perfecting of an organization, the securing of purchasers of stock, incorporation, and the erection and equipment of the plant followed in such rapid succession that the laundry was open for inspection November 30 and began operations December 2, a record of which any community might well be proud.

The organization of the laundry corporation is unique in that, although a separate corporation, the laundry and the creamery have the same officers. The object of this arrangement is to prevent friction between the officers of the two corporations, and, by making it a separate organization, to enlist the support and patronage of the town people, who are not stockholders in the creamery company, but who hold about 30 per cent of the capital stock of the laundry company. The creamery company owns the building, which it rents to the laundry company at $10 per month, a rental equivalent to 6 per cent on the investment, and supplies it with power and heat at the rate of about $15 per month.

The company is organized under the cooperative laws of the State and has been capitalized at $5,000. Shares sold for $5 each, but each of the 224 stockholders has but one vote, regardless of the number of shares he holds. Desiring to make the enterprise as purely cooperative as possible, the company, after paying 6 per cent dividends on all stock, refunds a portion of the remainder of the surplus in the form of a 10 per cent rebate to the patrons in proportion to the amount of business done with the laundry.

BUILDING AND EQUIPMENT.

The building (Pl. XXV, fig. 1) which is an addition to the creamery, is a well-built structure, 30 by 70 feet, costing about $2,000. Between and joining the two buildings are the boiler, engine, and coal rooms. This arrangement is convenient for the operators of both plants, reduces overhead expenses, prevents contamination of cream and butter from the laundry, and is economical of heat and power. A portion of the second story has been finished off for a lunch and rest room for the employees.

The equipment is of the most modern type. It consists of the following: 1 one-apartment wooden washer, 2 three-apartment wooden washers, 1 extractor, a soap cooker, a starch cooker, 1 five-roll mangle, 2 compartment dry rooms, a machine for ironing white shirts and collars, 1 dip wheel starcher, 1 neck-band ironer, 1 collar shaper, hand irons, ironing boards, trucks, baskets, and a standard scale. (Pl. XXV, figs. 2 and 3.)

The washers are of very simple internal construction. Rounded strips of wood extend the entire length of the interior. These projecting strips carry the clothes toward the top of the washer, where by their own weight they fall back into the suds below, an operation which insures cleanliness with the least possible amount of wear. Instead of boiling the clothes, each washing is subjected to steam under pressure. This is one of the very best methods of destroying disease germs, and for this reason, if for no other, the steam laundry should be a favorite with all who wish sanitary washing.

The extractor or "wringer" is another saver of clothes. The clothes, instead of being passed between two rubber rollers, are put into a large kettle-shaped, perforated copper bowl which rotates at a speed of 1,600 revolutions per minute, and thus throws out the water by centrifugal force. From the extractor the flat work goes to the mangle to be ironed and all other clothes go to the dry room. Only the purest of soap without any chemicals whatever is used in the process of washing.

This equipment, which cost about $3,000, is similar to that used in good city laundries and is sufficient to turn out $400 worth of work per week.

CHARGES.

The charges based on weight are 5 cents per pound, which includes the ironing of all flat work, underwear, and stockings. An extra charge, based on the time required by an expert hand-ironer, is made for the ironing of all articles which can not be ironed in the mangle. About one-half of the patrons have this ironing done at the laundry. The average cost per week for the family washing has been $1.05. Patronage is about equally divided between city and country.

MANAGEMENT.

The laundry usually employs about 8 persons: a superintendent who receives $25 per week, a forelady who receives 20 cents per hour, and 6 girls who receive 15 cents per hour. The employees of the laundry are directly responsible to the manager, who is the secretary of the laundry company and of the creamery board of directors. The work, however, is in the direct charge of the superintendent, an experienced laundryman.

The farmers bring their laundry when they bring their cream and get it on the following trip. The collecting and delivering of laundry within the city limits is done by a local drayman. In lieu thereof, the farmers get a 10 per cent rebate based on the actual amount of patronage. All city laundry is delivered C. O. D., while the creamery patrons have their laundry bills deducted from their monthly cream checks.

LAUNDRY IS A SUCCESS.

That the Chatfield Cooperative Laundry has proven to be a business success is evident from the following extracts from the company's financial statements:

Financial statement.

	First month, December, 1912.	Jan. 1, 1913, to Jan. 1, 1914.	Jan. 1, 1914, to Jan. 1, 1915.
Total receipts	$337.95	$5,065.05	$5,856.02
Wages	262.23	3,845.54	4,589.88
Dividend	12.00	150.00	150.00
Rebate	33.80	506.50	585.60
Running expenses	29.92	563.01	530.54

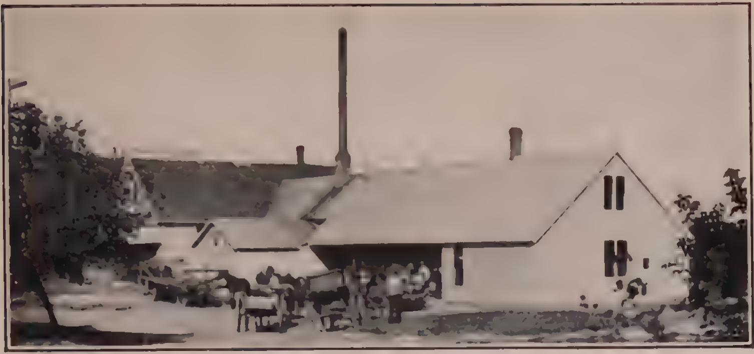


FIG. 1.—A BUSY DAY AT THE LAUNDRY.

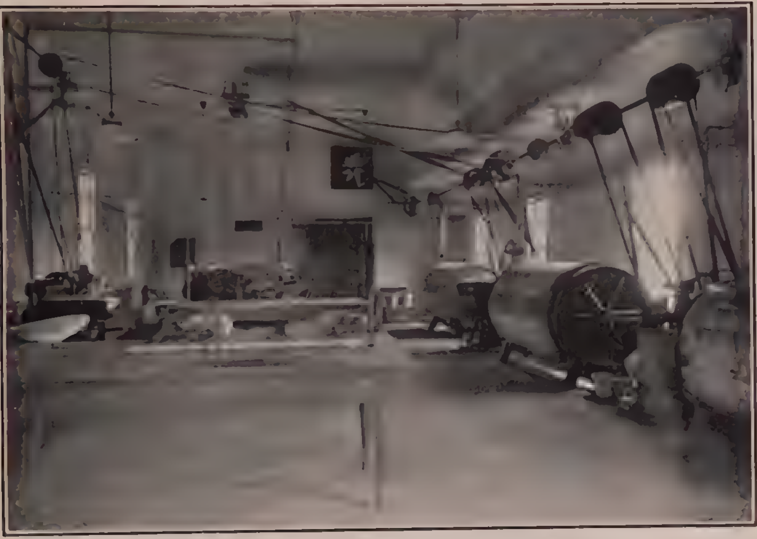


FIG. 2.—GENERAL VIEW OF THE INTERIOR.

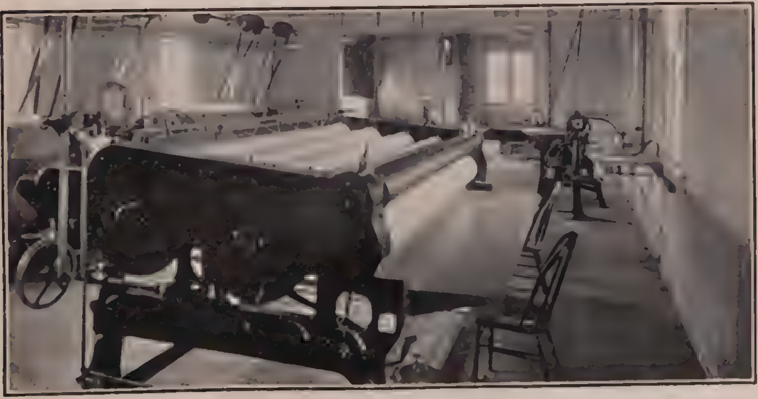


FIG. 3.—THE MANGLE.

That the laundry is rendering good service to the community and meeting the expectations of its founders is indicated by the following extracts from statements by patrons and stockholders:

> The Chatfield Laundry continues to be an entire success and I have no hesitancy in recommending it to other similar communities. The laundry here has been successful in relieving the hard life of a farmer's wife, and in addition has been not only self-sustaining but a profitable institution. The stockholders get their little dividend checks every year, and besides that the patrons get their 10 per cent rebate from the regular laundry prices which they pay. The unique feature of the thing is of course its connection with the creamery, and it was largely on that account that it was a paying institution from the start. Carrying the cream and washings together and using the same steam plant in the building are both cooperative features that work to its advantage. The fact that laundry bills are deducted from cream accounts makes the matter of collections a safe proposition.

> The Chatfield Laundry is giving the best satisfaction in every respect. It has the patronage of the entire community. The work is first class in every respect. I think the laundry is the greatest boon that ever came to the housewives of Chatfield and vicinity.

> I certainly think it is fine. As I have 10 in the family to wash for, it helps me a great deal. On Monday we send the laundry with the cream man. On Wednesday the clothes come home as fine as silk. It is a great benefit to the farmers' wives.

> The Chatfield Laundry is a great success and a wonderful help to the farmers' wives. The clothes come home fresh and clean and a great burden is lifted from the home work.

> The cooperative laundry is one of the greatest helps to the farmers' wives. The work is done very satisfactorily at a small cost. With washing and ironing done away from home, the mother has more time to devote to the many other duties.

> After a trial of nearly three years I am well satisfied. It has lightened the work in the home to such an extent that one can manage the work without keeping help, which is very scarce and high priced, when it would be impossible to do so if the washing was included with our other duties. I do not think the clothes wear out any faster than when laundered at home. The thinnest of little dresses and waists I send come back all right, and no matter how soiled the men's work shirts, overalls, and such like are, they come home clean.

I have patronized the laundry for three years and find the work as satisfactory as it can be done away from home. The clothes come home clean and the flat ironing is excellently done. I send my bed quilts, comforts, lace and scrim curtains, and they are just like new after they are washed at the laundry and look much better than when done at home.

In the conservation of mothers on the farm, rural cooperative laundries rank first, in my opinion. Having had 25 years' experience as a farmer's wife, I can say that I have taken more comfort the past 3 years than ever before because of having dispensed with the washing and ironing. This change gives me two days of recreation that I can call my own every week and also gives me more time in which to accomplish the household duties. I have never had cause for complaint, as all articles come back in good condition and I see no reason why the work is not as satisfactory as that done at home, if not better, as it leaves no backache or tired muscles in its wake. I am sorry all women can not see the advantages such an enterprise has in the community and all patronize it. Some send part of their clothes, and others none, cherishing the foolish idea that they are economizing. Strength and health, two priceless gifts which go a long way toward making home happy, are sometimes sacrificed. The men on farms have sane ideas about the laundry as a labor saver, and are proud of the fact that by milking a few extra cows to compensate for the extra outlay, they are doing their share to help lighten the housework. The rural laundry, like other good things, is jostled in its infancy, but is too good to drop, and will continue to prosper as well as the creameries and cheese factories of this time. When this comes to pass there will be no need for sympathy for the poor farmer's wife, and instead of pity, she will become the envy of her city sisters.

I don't know how I could get along without the laundry, and am sure that all the patrons of it would feel the same. I can not say too much in its praise.

THE POULTRY CLUB WORK IN THE SOUTH.

By Rob R. Slocum, *Scientific Assistant in Poultry Investigations, Animal Husbandry Division, Bureau of Animal Industry.*

GIRLS' and boys' poultry clubs have become an important part of the agricultural-club movement. Through these clubs the farm children are being trained in good methods in a useful and attractive industry and aided to earn money, and indirectly the work is bringing about improvement in a branch of agriculture that is probably more widely practiced than any other.

The girls' and boys' poultry club work was originally started in Virginia in November, 1912, as a cooperative project between the United States Department of Agriculture and the Virginia Agricultural and Mechanical College and Polytechnic Institute. During the first year the work, of necessity largely an experiment, was developed in certain localities where the conditions appeared suitable and was coupled closely with the work of the canning-club demonstrators. The results at the end of the first year were so satisfactory that the work has been continued along the same lines in Virginia and extended to the States of North Carolina, South Carolina, Georgia, Kentucky, and Tennessee.

OBJECTS AND METHODS.

The primary object of the poultry clubs is to improve the farm poultry and to place the poultry industry of the South upon a more profitable and practical basis. While the greater part of the direct effort is given to the girl and boy members of the clubs, these children have proved to be the means of interesting their parents, and have served as entering wedges for the introduction of better methods of poultry keeping and of improving stock in general. Stress has been laid upon the necessity of keeping the advice and methods as simple and practical as possible, while the local conditions and the recommendation of only such steps in improvement as could be accomplished without the expenditure of much money by the members have been kept constantly in mind.

A poultry-club agent, appointed for each State and working through the canning-club demonstrators, county agents, and school teachers, begins his work by visiting the schools in which clubs are to be organized. He talks to the pupils about poultry and about the idea of forming a club and asks the children to indicate whether they wish to become members. Each child who expresses his desire to join is enrolled as a member and is supplied with a set of the poultry bulletins of the United States Department of Agriculture, in addition to a set of five report blanks upon which he is instructed to keep a detailed account of his poultry work. When properly filled out at the end of the season these reports are sent to the poultry-club agent and show a complete record of the accomplishment of the members. This not only gives the county or State agents a guide as to how the members may best be advised and benefited but also encourages the child to keep a systematic record enabling him to see just what he has done, the mistakes he has made, and in what particulars he can better his work during the coming year.

All members are encouraged to raise and keep pure-bred stock. Poultry breeders have cooperated by furnishing sittings of eggs from their stock at prices within the reach of the poultry-club members, and by so doing have indicated their faith in and approval of the work. The widespread introduction of pure-bred stock in this manner and at low cost is of great benefit.

In order to give the members of the poultry clubs an opportunity to show what they have been able to accomplish in raising improved poultry and in producing better eggs, they are urged to make poultry and egg exhibits at many of the local and State fairs. Special classes are offered for exhibits of poultry-club members, and many cash and special premiums are awarded. The quality of the stock shown has been excellent and has created much favorable comment. In some instances fowls raised and exhibited by poultry-club members have been of sufficiently high quality to win over the exhibits of older breeders.

WORK OF THE POULTRY-CLUB AGENTS.

The poultry-club agent attempts to visit at intervals the homes of members, and to give them personal attention and advice. With the number of members enrolled, however, it is possible to reach a comparatively few homes. He is compelled, therefore, to depend upon the teachers and county agents for much of this work, and he quickly comes to realize that those who are interested and well informed in poultry give a great impetus to the work. He therefore endeavors to interest them in the work of the poultry clubs. This is accomplished by giving a series of lectures before the rural teachers' classes at the normal schools, and before the students of the county and agricultural high schools. Thus he succeeds in interesting many prospective teachers who may go into communities where poultry clubs exist, and who will in consequence have greater initiative in advancing the work.

While the State poultry-club agent works primarily with the children, he frequently finds opportunity to give aid to the farmers and poultrymen of his State; and wherever this can be done without seriously hampering his club work, it is especially encouraged. In connection with this phase of the work the agents have been of considerable service in encouraging the production of infertile eggs—doubtless the most practical method of effecting the improvement of market eggs, particularly in the South, during the summer months.

COMMUNITY BREEDING.

In some of the counties where the work has been in progress longest, community poultry breeding has been established, and a single breed or variety is kept both by the club members and by their parents. Thus far the plan has met with favor and has proved practicable. The object is to encourage the community to devote its efforts to breeding and raising one variety. Thus each member is reenforced by being closely associated with many others breeding the same kind of fowl, while at the same time a center is established with a reputation of high quality in large quantities, whether it be market eggs and fowls, or breeding stock and eggs for hatching.

SCHOOL POULTRY FLOCKS.

An interesting outgrowth of the club is the establishment of school poultry flocks. In several instances high schools and graded schools have established, in connection with their regular curriculum, a course in poultry husbandry, using Government bulletins as textbooks, and managing their fowls on the school grounds, so that the children may take an active part. If the school has a janitor, the care of the poultry becomes a regular part of his duties, the same as the care of the building. This system not only serves to create an interest in and knowledge of poultry among the children, but among the older people as well. It also provides an opportunity to demonstrate suitable poultry equipment for that particular community, and serves to a considerable degree as a distributing center for pure-bred eggs for hatching. The establishment of such school poultry flocks is distinctly to be recommended.

GROWTH IN THREE YEARS.

An idea of the growth of the poultry-club work may be obtained from the following comparative figures for the first year (1913) and for the part year (1915). The growth is actually greater than shown, for the reason that the figures for 1915 are not complete.

Comparative growth of poultry-club work, 1913 and 1915.

	1913	1915	Per cent increase.
States organized	1	6	500
Counties organized	4	98	2,350
Clubs organized	11	326	2,863
Members	150	3,722	2,381
Eggs set	2,378	[1] 11,860	398
Eggs hatched	1,696	[1] 8,595	406
Chicks raised	1,201	[1] 6,402	433
Shows held	3	[2] 42	1,300
Number of fowls shown	132	[2] 3,048	2,209
Number of dozen eggs shown	0	[2] 155	....
Number of members exhibiting	50	[2] 931	1,762
Total value of awards	$218.50	[2] $1,177.74	434

[1] Figures for 1914.

[2] Incomplete.

SOME RESULTS.

In measuring results it is of interest to note the accomplishment and success of some of the club members. Those here given are taken from reports furnished by the poultry-club agents.

A girl member of Nottaway County, Va., starting with one or two sittings of eggs, in two years built up her poultry flock so that she had sold $75 worth of broilers, $3.15 worth of eggs for hatching, and $8.70 worth of eggs for the table. The money which she made in this way played an important part in enabling her to attend the county agricultural high school.

Two brothers, poultry-club members, are now breeders of pure-bred poultry. They have been successful in their venture, and advertise their stock both in local and in State papers. Last year the younger brother sold about $80 worth of market poultry and eggs, while the older brother sold a large number of breeding stock and eggs for hatching. As a result of the poultry-club work, both of these boys have been able to attend winter short courses at their State college.

Two sisters, encouraged by their mother, became interested in the poultry-club work. During the first year one of these girls built up a flock worth $124, while her sister's flock is worth $70. At the same time they have made enough money from their flocks to enable them to secure poultry equipment worth $175. These girls stated to the poultry-club agent that they expect thus to pay their way through normal school.

An interesting example of what a boy can accomplish is furnished by another Virginia member. In the face of discouragement by his parents, and working under the handicap of physical unfitness, this boy started in the poultry business with a pen of Barred Plymouth Rocks, consisting of a male and four females, which he won as a prize for an essay on poultry. From this start he has built up a large poultry flock which is well housed and cared for, and he has succeeded in demonstrating to his parents and to the community that poultry has a place on every farm and can be made a source of profit. Last year he was awarded a trip to Luray

Caverns as the result of his systematic, thorough work. The year before he had the honor of being the first and only poultry-club member to receive a diploma of excellence and proficiency from the Secretary of Agriculture and a week's trip to Washington. Last year this boy sold $78.50 worth of poultry products, making a specialty of selling eggs for hatching and breeding stock to new members of the poultry club and to farmers in his section.

One of the few members who have specialized on turkeys is a girl who started last year only in a small way. In this short time she has sold table turkeys amounting to $36, breeding stock valued at $4.50, and has a flock left valued at $44.

It is clear that the poultry-club work in the South is a success. It reaches the boys and girls of the farms and carries to them, and through them to the communities in which they live, a knowledge of better poultry and of better methods of care, feeding, and housing. The reports from members show that definite results are being obtained, and in addition a great deal of benefit is brought about both to members and to the older people which never finds its way into the reports. The work is receiving the support and commendation of the people among whom it is being carried on.

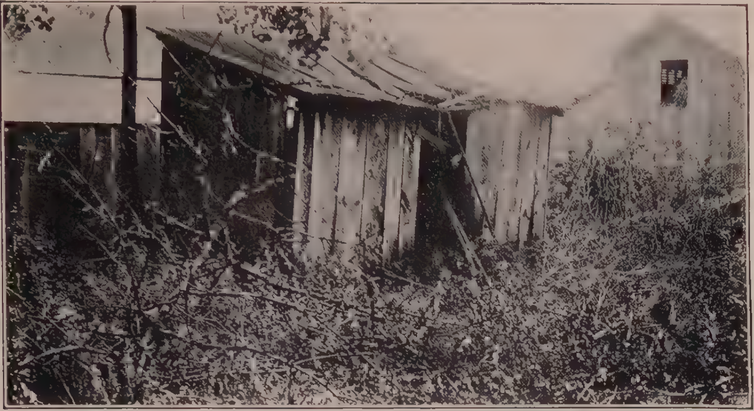


FIG 1.—POULTRY HOUSE AT BOY'S HOME BEFORE HE BECAME A MEMBER OF THE POULTRY CLUB.

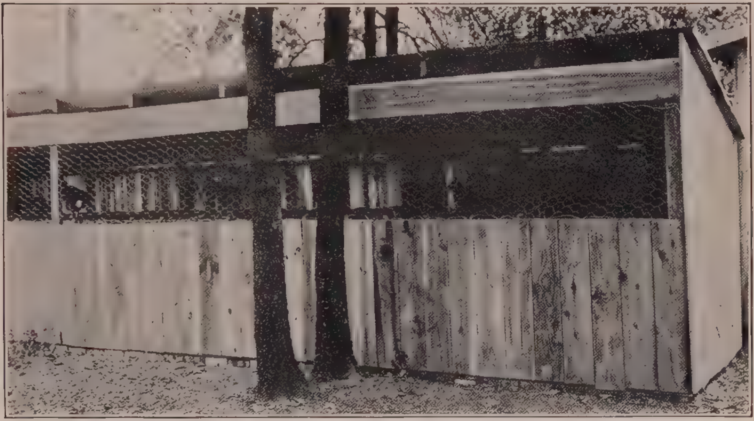


FIG. 2.—POULTRY HOUSE REBUILT AFTER HE JOINED THE POULTRY CLUB.

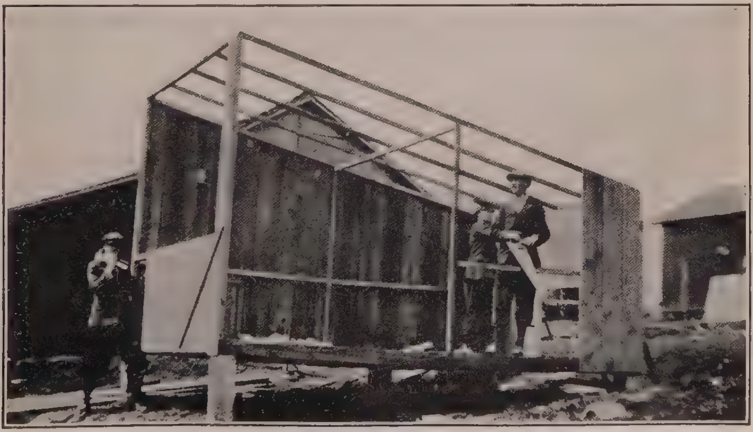


FIG. 3.—POULTRY-CLUB BOYS BUILDING A POULTRY HOUSE.

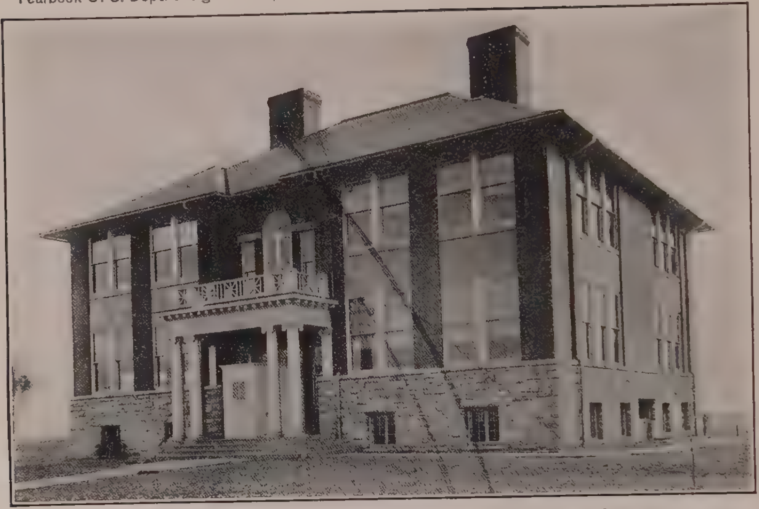


FIG. 1.—THE MIDDLETOWN (VA.) AGRICULTURAL HIGH SCHOOL.

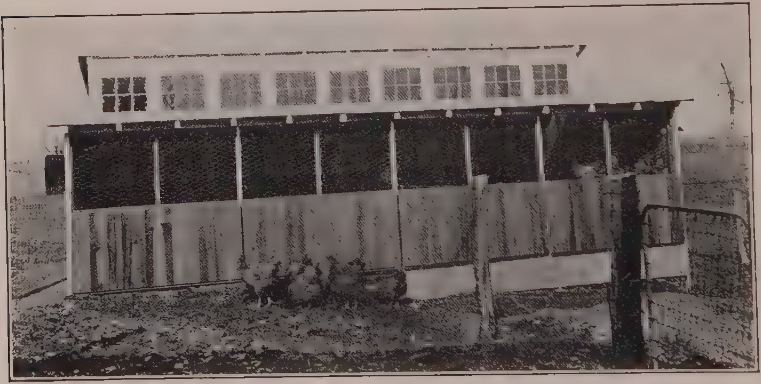


FIG. 2.—COMMUNITY POULTRY HOUSE, MIDDLETOWN (VA.) POULTRY CLUB.

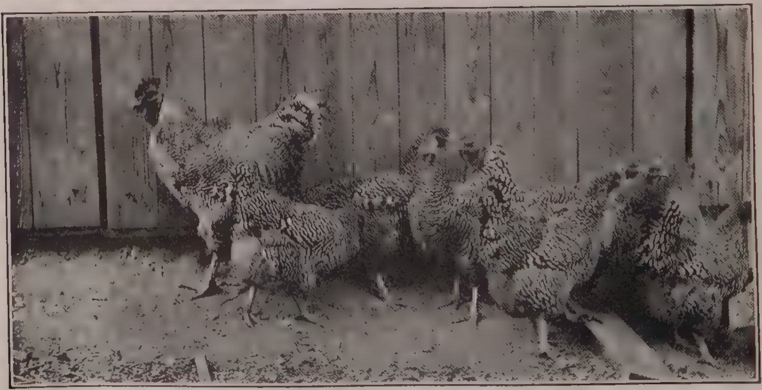


FIG. 3.—PEN OF BARRED PLYMOUTH ROCKS USED BY THE MIDDLETOWN (VA.) POULTRY CLUB.

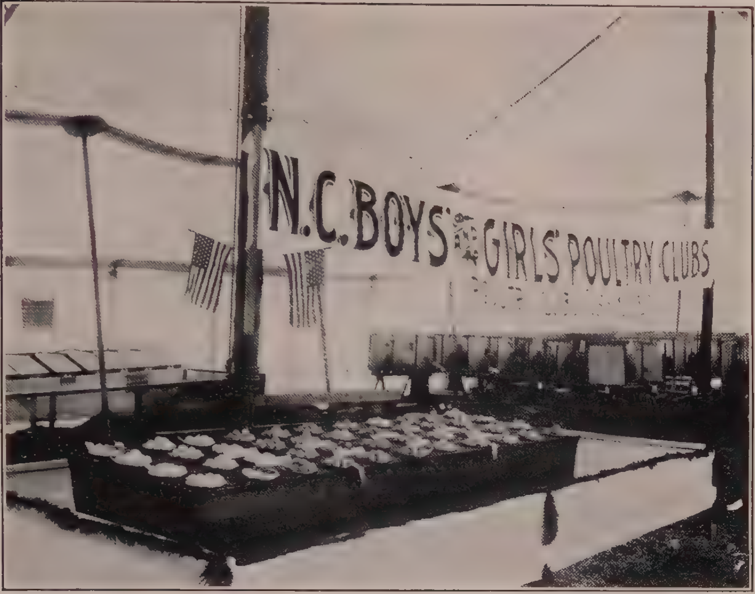


Fig. 1.—Egg Exhibit of the Girls' and Boys' Poultry Club at the Charlotte Fair, Charlotte, N. C.

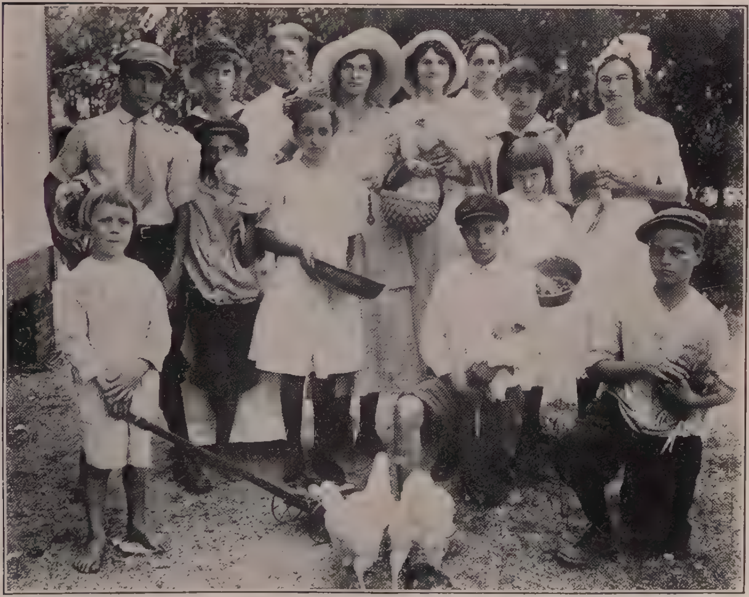


Fig. 2.—A Typical Poultry Club.

OSAGE ORANGE WASTE AS A SUBSTITUTE FOR FUSTIC DYEWOOD.

By F. W. KRESSMAN, *Chemist in Forest Products, Forest Service.*

SUPPLY OF OSAGE ORANGE WOOD.

THE scarcity of aniline colors and the rise in the price of imported fustic give a special timeliness to experiments carried on during the past three years by the Forest Service to determine the value of osage orange as a dyewood. Osage orange grows naturally in southern Arkansas, Oklahoma, and Texas and has been extensively planted in the Middle West. It is a very strong and durable wood, valuable for many purposes, but chiefly used at present for wagon felloes and fence posts. Though utilized with exceptional care, a great deal of waste necessarily results from manufacture on account of the tree's small size and irregular shape. Inquiries by the Forest Service indicate that between 40,000 and 50,000 tons of Texas and Oklahoma osage orange are available annually. It was the existence of this large amount of waste material and the fact that osage-orange extract was once used by the Indians to dye their blankets and other fabrics which prompted the Forest Service to determine the chemical nature of the dyestuff present and to compare it with that obtained from tropical fustic, the dyewood which osage orange most nearly resembles.

The war in Europe is responsible for practically quadrupling the importation of fustic. From 1905 to 1913 imports of fustic ranged between 3,000 and 4,500 tons annually. In 1914 this jumped to 7,000 tons, and in 1915, though complete figures are not yet available, it probably reached 14,000 tons. On July 20, 1914, chipped fustic was quoted at $0.015 to $0.02 a pound. On December 8, 1915, quotations ranged from $0.05 to $0.07 a pound. Before the war solid fustic extract brought from $0.08 to $0.11 per pound; in December, 1915, quotations ranged from $0.025 up. One case is known of a large tannery in Milwaukee which, during the summer of 1915, paid more than $0.50 for 51° Tw. extract, which ordinarily is quoted at about three-fourths the cost of solid extract.

CHEMICAL COMPOSITION.

A study of the extract obtained by leaching the ground wood or shavings of osage orange with water showed the dyeing principles present to be morin or moric acid. and morintannic acid or maclurin. the same as those in fustic, and a very small amount of a third. unknown red constituent. This red constituent is found in relatively large amounts in fustic from some localities, for example Mexico, and in comparatively small amounts in material grown in Jamaica and South America. Its practical absence from osage orange, however, is an advantage rather than a defect, since any considerable quantity of it tends to reduce the purity of the shades obtained and to give them a muddy or murky appearance.

DYEING VALUE.

Samples of osage-orange wood in the form of shavings and sawdust were submitted to the Lowell Textile School, the New Bedford Textile School, the North Carolina College of Agriculture and Mechanical Arts, and the Georgia School of Technology for comparison with fustic in dyeing wool.

The summary of reports from these institutions showed that the character of the dyeing produced by osage orange is almost identical with that of fustic, each being a polygenetic mordant dyestuff. Osage orange can be used advantageously for self-shades, also in conjunction with logwood and other mordant dyes and with alizarine. With a tin mordant it gives a comparatively bright yellow; with an aluminum mordant, a somewhat greener and duller shade of yellow; with a chromium mordant, a series of tans and old-gold shades: and with iron and copper mordants, dark browns, chocolate, and olive shades.

Opinions differed as to the depth of the colors produced. Some believed that the osage orange gave a deeper color than did fustic: others considered osage orange to have a tinctorial value only 75 or 80 per cent of that of fustic. The difference was apparently due to differences in the fustic used for comparison. It is generally held in the trade that Mexican (also called Vera Cruz or Tehuantepec) fustic is better than either the Jamaica or Maracaibo (Venezuela).

All opinions concurred that the aluminum and tin mordanted colors produced by osage orange (and by fustic also) are too fugitive to be of commercial value. The chromium, copper, and iron mordanted colors, however, are all reported as of commercial value, the chromium color being especially resistant to light and washing. No difference could be noted between the osage-orange and fustic colors in any of the fastness tests.

Opinions differed as to the amount of water-soluble extract obtainable from osage orange. This was probably due to the different methods of extraction used. Results obtained in this connection by the Forest Products Laboratory are as follows:

Dyewood.	Moisture.	Water-soluble extract, dry basis.
	Per cent.	*Per cent.*
Texas osage orange	10.90	14.90
Tehuantepec fustic	7.60	17.77

The following results of an analysis of the wood at a commercial laboratory bears out the results obtained by the Forest Products Laboratory in regard to the percentage of water-soluble extract, and in addition shows that the wood contains large amounts of tannin:

	Per cent.		Per cent.
Moisture	9.30	Insoluble solids	1.10
Total solids	14.86	Nontannin	3.31
Soluble solids	13.76	Tannin	10.45

Just how much tannin the material actually contains, as distinguished from dyeing principles, is impossible to say, since the two are so closely allied chemically. The material will tan and dye at the same time. Fustic acts similarly and is extensively used for retanning or "after-tanning" chrome (mineral) tanned leather, especially when it is later to be dyed some tan shade with basic aniline colors. The vegetable tannin color acts as a mordant for the aniline color and gives a good bottom tan color over the blue of the chrome, thus reducing the amount of aniline dye necessary.

OSAGE ORANGE FOR DYEING LEATHER.

In view of the striking similarity of results obtained by dyeing wool with osage orange and fustic, it is reasonable to expect that osage orange should be as valuable as fustic for dyeing leather. In fact, preliminary tests indicate that this is the case. Experiments made at a large tannery in Milwaukee on chrome-tanned calfskins show that here, too, osage orange gives the same shades and depth of color as fustic.

OSAGE ORANGE FOR COTTON.

Experiments are at present under way to determine the value of osage orange as a cotton dye. Ordinarily a dyestuff like osage orange would not be considered as suitable for cotton. The war, however, has deprived this country of its chief source of aniline colors. It is quite possible that for colored twines, cords, and similar materials where fastness and permanence are not essential, good shades may be developed that will fill the void left by the present shortage of aniline dyes.

COMMERCIAL POSSIBILITIES OF OSAGE ORANGE.

The greatest hindrance to the commercial use of osage orange has been the high freight rates from the point of production to the North Atlantic seaboard. The center of production is several hundred miles inland, and the rail freight to a port like Galveston is practically as great as the total cost of transporting fustic from the interior of Mexico to New York or Philadelphia. Several concerns interested in the development of osage orange, however, are surveying the ground in the Southwest with the idea of erecting extract plants there. Should such a plan prove feasible, a long step will be taken toward the commercial exploitation of osage-orange dyes.

Since the yield from osage orange is about 80 or 85 per cent of that from fustic, the cost of operating an osage-orange plant will, of course, be somewhat greater than that for a fustic plant of the same capacity. This must be taken into account in comparing the two raw materials as a source of dye. Because osage orange is not at present on the market, it is difficult to give exact figures of cost. One concern in the East, however, states that, as compared with fustic, for which they paid $25 a ton in the spring of 1915, osage orange would be worth $14 a ton. As far as the actual cost of the two woods is concerned, osage orange has a distinct advantage over fustic. Quotations secured by the Forest Products Laboratory from osage-orange producers in the Southwest for culled fence posts and other forms of waste, not bark, averaged $5 a ton. With an extract plant in its region of production there will probably be a considerable margin in favor of osage orange even in normal times.

CHINA A FRUITFUL FIELD FOR PLANT EXPLORATION.

(Plates XXIX to XXXVI.)

By Frank N. Meyer, *Agricultural Explorer, Office of Foreign Seed and Plant Introduction, Bureau of Plant Industry.*

HAD a race like the Chinese been living on the North American continent for forty centuries it is very likely that they would have evolved out of our native wild species of fruits varieties of great merit. Since the continent has not been occupied by an indigenous race of people which took pains to develop such native species as our American plums, hawthorns, persimmons, hickories, and numerous others, many of our plants have been neglected.

The Caucasian races appeared late on American soil and they had already developed so many types of their own which they brought with them that they naturally did not pay much attention to the strictly native American plants. However, many plants which came from western and southern Europe were not entirely successful on American soil, some even proving to be almost complete failures, such as certain European varieties of gooseberries, currants, raspberries, and strawberries. When the immigrants settled the western portion of the country it became especially apparent that many of these European cultivated varieties of fruits and vegetables were unsuited to the climatic and soil conditions prevailing there. This was because the climate of Europe was much more equable, more like the northern Pacific coast region than that of the Middle West. When we turn to other countries, particularly toward Asia, we find that in China, especially, climatic and soil conditions are in the main very similar to those in the United States; in fact, China's wild vegetation in some parts resembles that of the eastern United States to such an extent that a person suddenly transported from either region to the other would not always exactly realize where he was.

Fortunately, China has been settled for some forty centuries or longer and her industrious peoples have developed from their native vegetation many improved varieties and types which are admirably suited to their local conditions. The climatic conditions in many parts of China being similar to those in certain parts of the United States, we need not hesitate about predicting the success of certain Chinese plant industries when they have been transplanted to this country, aside, of course, from certain economic conditions which are entirely different in China from what they are in North America.

Certain plants from China, indeed, have already become established in this country. Is it not a fact that the peach industry of Georgia has been built up on a variety which has a Chinese hybrid origin? Do not the Kieffer, LeConte, and Garber pears owe their success to their Chinese ancestry? Have not some Chinese trees like the *Ginkgo biloba*, the tree of heaven (*Ailanthus cacodendron*), the pride of India (*Melia azedarach*), and the camphor tree (*Cinnamomum camphora*) proved eminently successful in many parts of the United States? Are not our porches adorned by *Wistaria chinensis*, our hybrid roses being hybridized with the Wichuriana rose, and our parks embellished with countless Chinese flowering shrubs, like tree peonies, abelias, golden bells, and mock oranges?

The Department of Agriculture, having long been in possession of facts regarding the existence of important and promising plant industries in China, decided to have a thorough investigation made as to the possibility of successfully introducing these industries into this country. It was my good fortune to have been selected to do this work. I have made three successive trips into China and in all spent about 6 years in that immense country, covering mainly, however, northern and eastern China and the neighboring regions of northern Chosen (Korea), eastern as well as western and central Siberia and Mongolia, and Russian Turkestan. I did not visit southern China nor the upper Yangtse Valley regions. Six years may seem to be a long time, but in a country so vast as China and where the means of communication are so primitive that on the average one can travel only 20 miles a day, after all one can not cover very much territory in that time. (See fig. 4.)

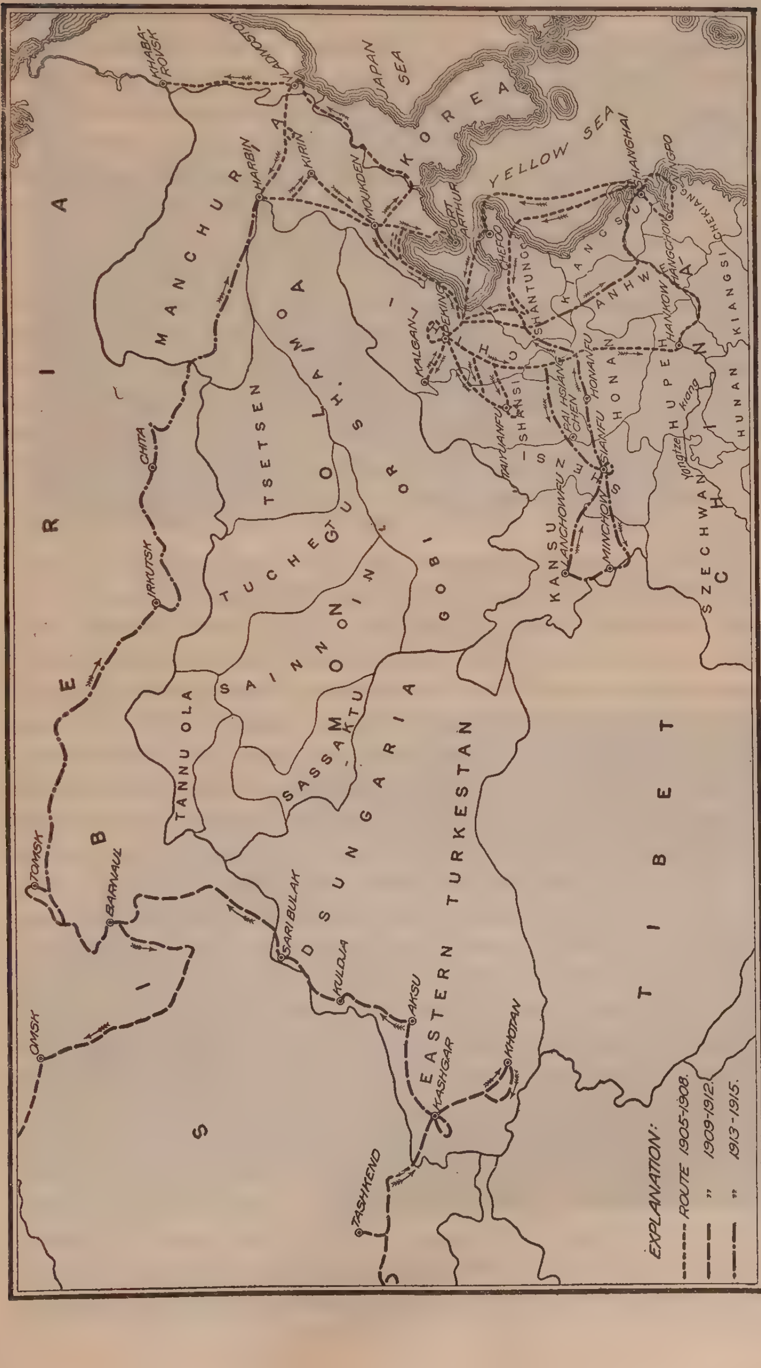


FIG. 4.—Map showing the routes through China and adjoining countries traveled by F. N. Meyer in his three trips as an agricultural explorer from 1905 to 1915.

The work of an agricultural explorer while in the field is strenuous in many ways. He must have a capable interpreter for this work, on account of the difficulties of the language. Without one it would be impossible at times to obtain the plants he is after. The absence of a good interpreter may mean the failure of a whole expedition, as in many parts of China the Chinese refuse to deal with a person who does not understand their ways of doing things.

In China there are 22 different languages and 400 dialects, and this causes endless trouble in traveling from one end of the country to the other. If a person follows the beaten path of travel from one big city to another, he will not experience the difficulties which an explorer encounters, for the latter to obtain the things he is after has necessarily to go into the out-of-the-way rural communities; for instance, one never finds the best groves of fruit trees along the highways of travel.

It is often only through a capable and energetic interpreter that one learns of the whereabouts of a valuable new plant variety. Having finished a day's cart journey and having settled in a Chinese inn, one's interpreter often begins to talk with fellow travelers and local residents about the business in which his master is engaged. The Chinese are very inquisitive. They find out every detail about one another's masters and their particular business. Often these travelers can not conceal their amazement when they learn that a foreigner has come so far to get a product which seems to them so common and with which they are so well acquainted. It frequently happens that such fellow travelers unconsciously give information of great value, and it is here that the capabilities of an interpreter come in. If he allows the conversation to drift into mere trivialities and does not make any mental or written notes, often the whole result of a conversation which lasts for hours is lost to the explorer.

The equipment of an agricultural explorer traveling in the interior of China is similar to the camping outfit used by any explorer going through a rough and unsettled country, although, of course, China in the main is densely settled. Nevertheless the accommodations at the inns are extremely poor. The work of an agricultural explorer is so far

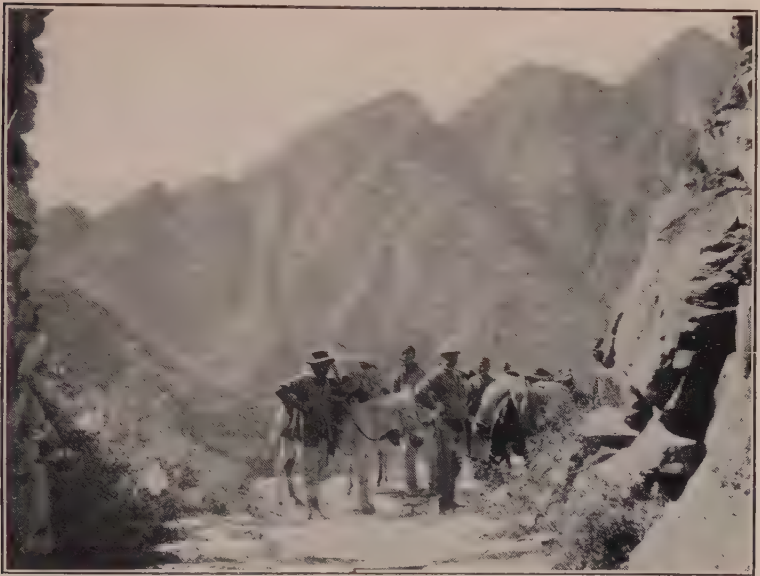

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FIG. 1.—THE EXPLORER'S CARAVAN OF PACK ANIMALS IN A MOUNTAIN DEFILE, COMING BACK FROM AN INVESTIGATION TRIP INTO A FRUIT DISTRICT NORTHWEST OF PEKING, NEAR YING TAU KO, CHIHLI PROVINCE, CHINA.

Photographed September 13, 1913.

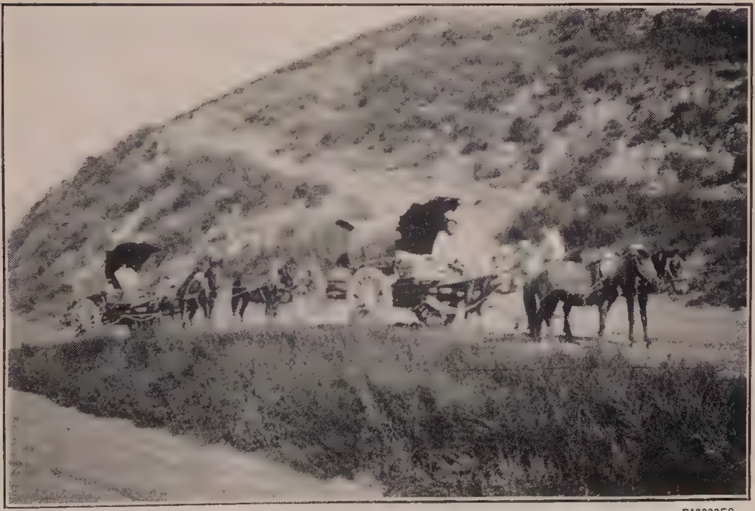
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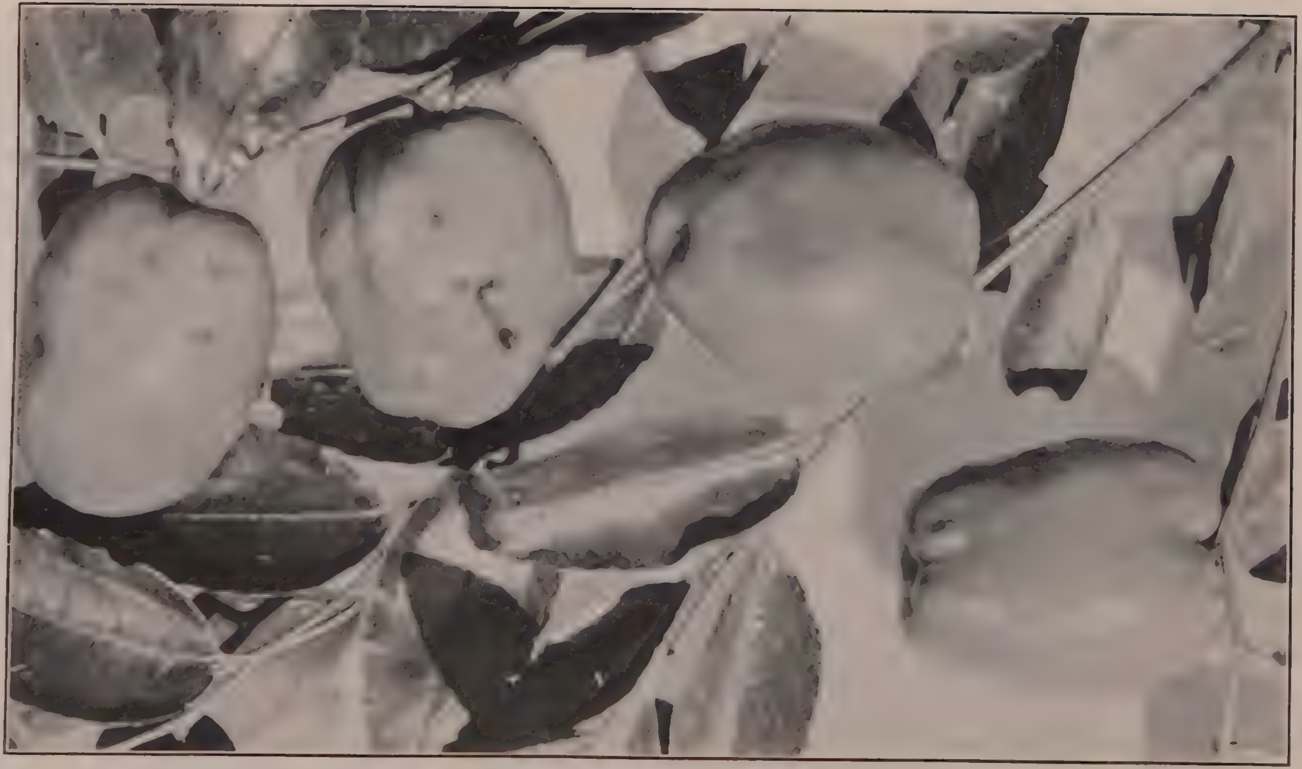
FIG. 2.—THE EXPLORER'S CARAVAN, CONSISTING OF TWO SPRINGLESS CARTS WITH AWNINGS OF WOVEN KAOLIANG MATTING (HOLCUS SORGHUM), TRAVELING ALONG A DUSTY ROAD, NEAR TUNG CHEN, SHANSI, CHINA.

Photographed August 6, 1914.



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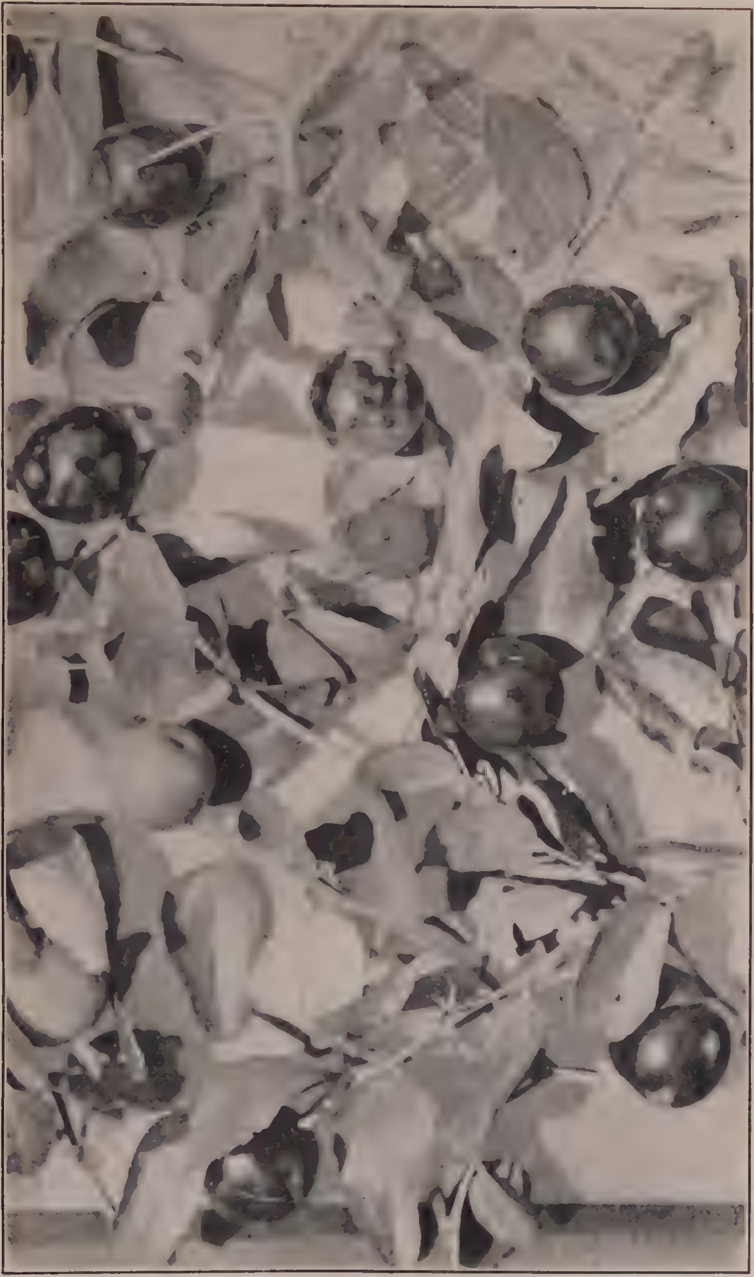
ONE OF THE LARGE-FRUITED CULTIVATED VARIETIES OF JUJUBE (ZIZIPHUS JUJUBA), NATURAL SIZE, CALLED "TA YUAN TSAO," MEANING "LARGE ROUND JUJUBE."

A very promising variety propagated in China by suckers. Several cultivated varieties with fruits of this size or even larger have been introduced and fruited in America. Photographed at Pai Hsiang Chen, Shansi, China, August 10, 1914.



WILD JUJUBES (ZIZIPHUS JUJUBA) SHOWING THE NATURAL SIZE OF THE RIPE FRUITS BORNE BY THE SEEDLING TREES BROUGHT INTO AMERICA MANY YEARS AGO.

Photographed at Lau Yu Ko, Shensi, China, September 5, 1914.

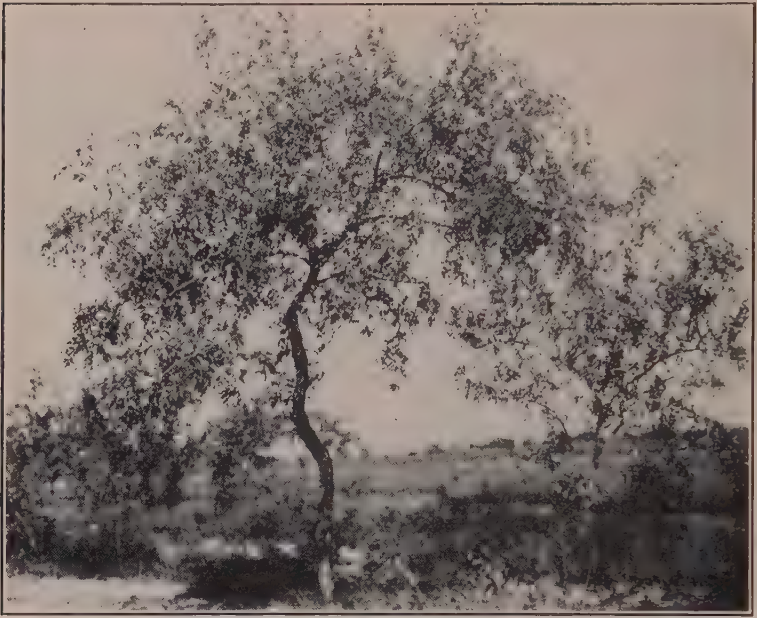


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FIG. 1.—A SINGLE SPECIMEN TREE OF A CULTIVATED JUJUBE (ZIZIPHUS JUJUBA) CALLED "CHANG TSAO," MEANING "LONG JUJUBE."

Note the peculiar semidrooping habit, which is characteristic of most jujubes. Photographed at Pai Hsiang Chen, Shansi, China, August 10, 1914.

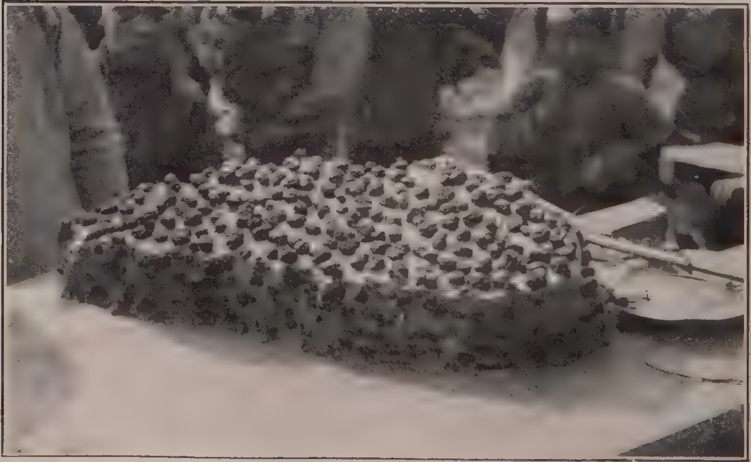

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FIG. 2.—A GIGANTIC CAKE OF PROSO (PANICUM MILIACEUM) AND JUJUBES (ZIZIPHUS JUJUBA) BOILED TOGETHER AND SOLD IN SLICES FOR 2 TO 3 CENTS, MEXICAN, A SLICE.

Photographed at Peking, China, April 27, 1915.

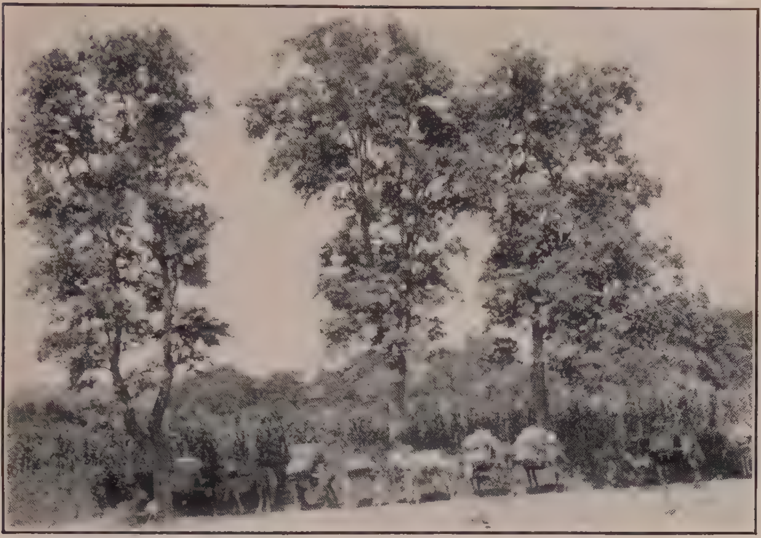


FIG. 1.—OLD PERSIMMON TREES (DIOSPYROS KAKI) OVER 80 FEET IN HEIGHT. OUR CARAVAN RESTING AT THE BASE OF THE TREES, NEAR KWEI HSIEN, SHENSI, CHINA.

The trees are so tall that it is necessary to pick the fruit by means of a long bamboo pole with a bag fastened at the end. Photographed September 10, 1914.

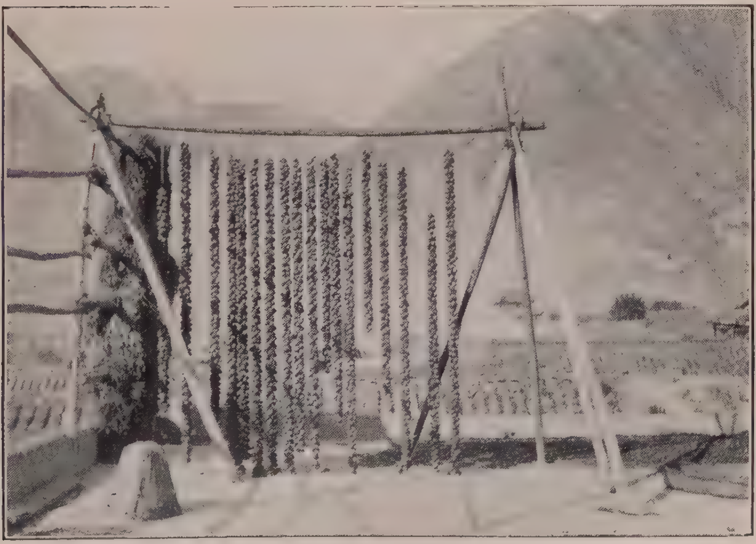
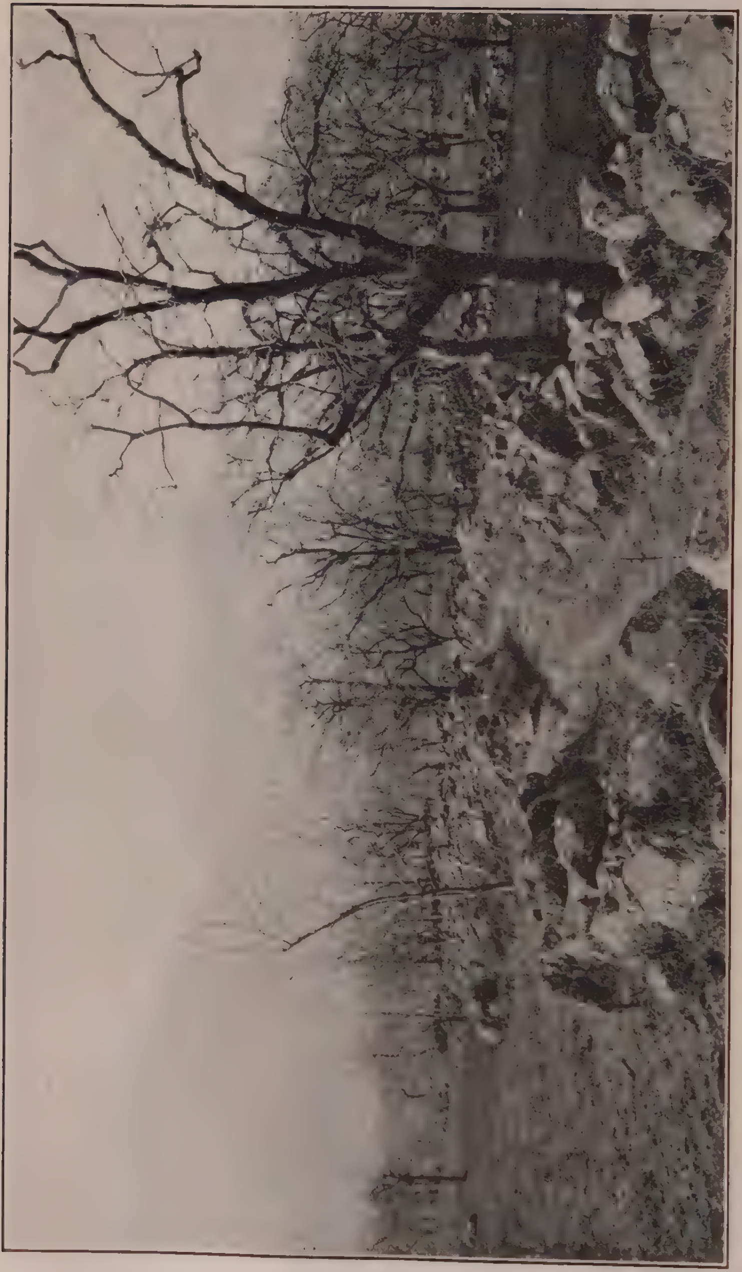


FIG. 2.—LONG STRINGS OF PEELED PERSIMMONS HANGING FROM A POLE SET UP ON THE MUD ROOF OF A HOUSE IN SIKU, KANSU, AT THE TIBETAN BORDER OF CHINA.

Photographed November 16, 1914.



P13059FS

A GROVE OF PERSIMMONS (DIOSPYROS KAKI) CONSISTING MAINLY OF DRY-MEATED VARIETIES, ALL GRAFTED ON THE WILD PERSIMMON (DIOSPYROS LOTUS).

At the foot of the Tsing Ling Range near Sianfu, Shensi, China. Photographed January 22, 1914.

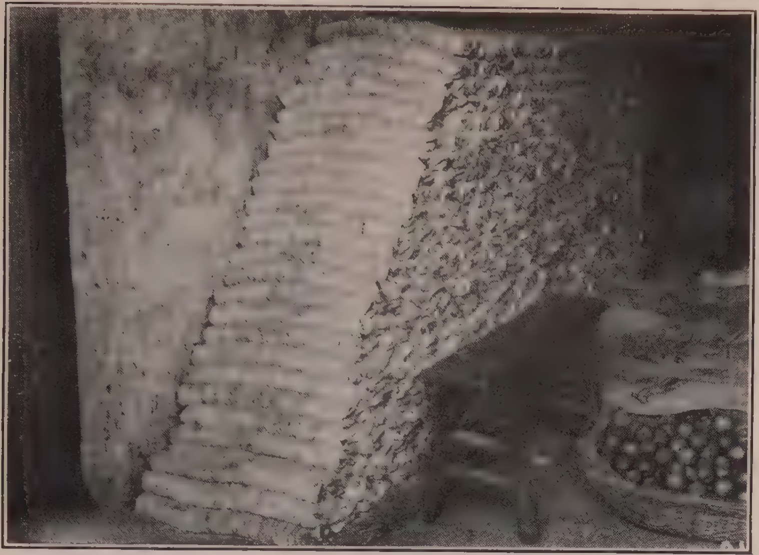


FIG. 1.—A LARGE STACK OF DRIED PERSIMMONS (DIOSPYROS KAKI) IN A FRUIT STOREROOM IN PEKING, CHINA.

The fruits are strung on twisted strings of dried rush stems, and in this way the product is marketed ready for human consumption. Photographed March 22, 1913.

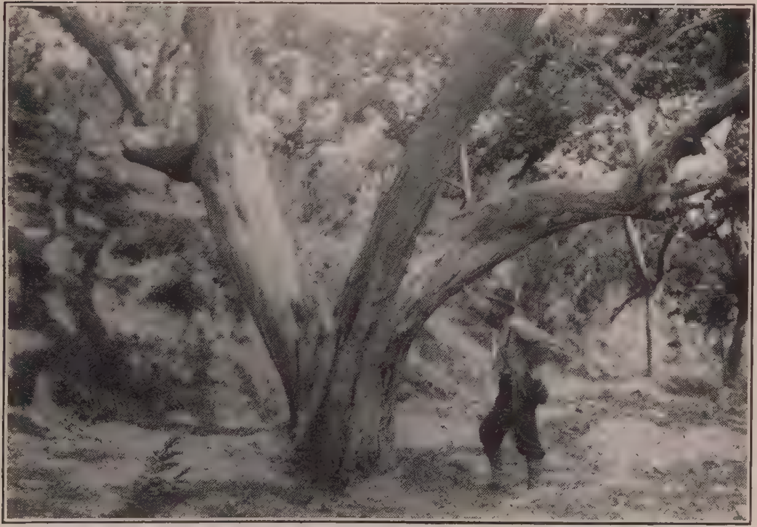


FIG. 2.—AN OLD CHINESE CHESTNUT TREE (CASTANEA MOLLISSIMA) WITH BARK SCRAPED CLEAN BY THE NATIVES, RECOVERING FROM ATTACKS OF THE BLIGHT (ENDOTHIA PARASITICA).

Notice how the wounds are in the process of healing over. Photographed near San Tun Ying, Chihli Province, China, June 1, 1913.

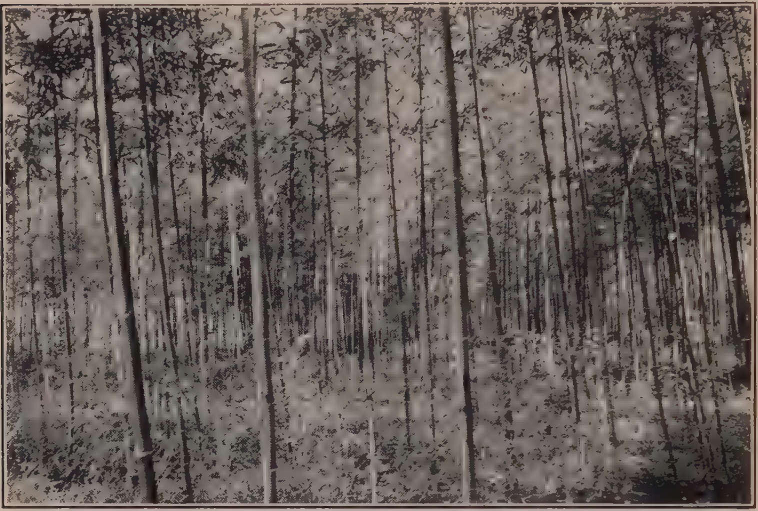


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FIG. 1.—A FINE GROVE OF A SLENDER TIMBER BAMBOO (PHYLLOSTACHYS SP.) OF VERY UNIFORM GROWTH, MUCH EMPLOYED IN THE MANUFACTURE OF FINE FURNITURE.

Native name "Tae tsoh." Photographed at Mokanshan, Chekiang Province, China, August 7, 1915.

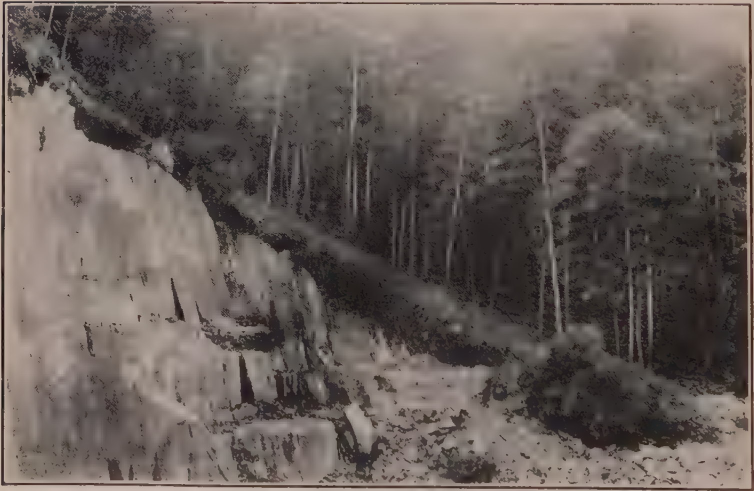

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FIG. 2.—A HILLSIDE GROVE OF THE IMPORTANT TIMBER BAMBOO (PHYLLOSTACHYS PUBESCENS) GROWING ON A THIN LAYER OF CLAY LOAM COVERING A STRATUM OF GRANITE ROCK WHICH IS BEING QUARRIED.

Native name "Mao tsoh." This species supplies edible sprouts as well as timber. Photographed at Mokanshan, Chekiang Province, China, August 3, 1915.

different from that of an ordinary botanical collector that he has to gather live material which is often extremely perishable, and has to be equipped with such paraphernalia as to enable him to send the live material on a long journey to his home country. It is necessary to carry a bale of sphagnum moss, rolls of oiled paper and packing paper, copper labels, notebooks, and herbarium driers in waterproof sacks, and supplies of twine and cloth from which seed bags can be made and in which the parcels of plant material can be sewed.

In sending plant material from the interior of China one has to know how and when to ship it. Seeds like grains and beans are the easiest of all, for when dry they can be packed in cloth bags, labels inclosed, and sent at almost any time of the year. Seeds of a perishable nature, however, like acorns and chestnuts, are much more difficult to ship. These have to be packed in moistened, powdered, washed-out charcoal, or in finely chopped-up dampened sphagnum moss inclosed in oiled paper and put into wooden boxes, so as to prevent the young sprouts from being crushed en route, for often these seeds start to grow in transit. Such seeds have to be sent as quickly as possible after collecting, for many of them perish within a few weeks. Scions and cuttings are even more difficult to handle, for they can be collected only in the resting season, which often is in winter, and have to be put in damp sphagnum moss within a few hours after being cut. I always made it a practice to pack such scions and cuttings the day I collected them and never let them remain unpacked a single night. In severe winter weather we often had to heat water to prevent it from freezing, in order to moisten the sphagnum moss, and sometimes a few minutes after the cuttings were wrapped the parcel was frozen hard, for in the rooms of a North China inn there are no stoves, the paper windows are often broken and torn, and the temperature inside is but little higher than that outside. I kept these frozen packages sometimes for several weeks, until I reached a post office which was willing to receive and forward them either direct to Washington or to the consul general in Shanghai.

I attribute the success which I have had in sending the parcels of living plant material from such far-away towns as Kashgar, in Chinese Turkestan, and Lanchowfu, in Kansu, to Washington, D. C., to these special methods of packing which I have described. It must be admitted, however, that if the parcel post system had not been extended to these inland towns, and if our ambassador in St. Petersburg, the American minister in Peking, and the American consul general in Shanghai had not forwarded these official parcels of plants in their diplomatic and consular pouches through the State Department to the Department of Agriculture, these successes would have been minimized.

Owing to the fact that transportation in China is still quite as primitive as it was in America before the building of railroads, one has to travel there with a caravan composed of pack animals or Chinese springless carts. I found that when traveling with pack animals or with carts, except in the great heat of summer, it was better to walk, because I was then free to examine the roadside plants and trees without stopping the caravan. Often I found I could walk much faster than the caravan. When, however, I traveled through unsafe regions it was necessary to keep close to my men. In all the six years of travel in the interior of China, during which I walked several thousand miles, it has been my good fortune never to have had any accident of consequence, nor have I lost any large collections of material.

The collections of these years of travel comprised about 2,500 introductions, including seeds, bulbs, cuttings, scions, roots, and live plants, most of which were personally selected and generally for some specific purpose, the details of which will be found in the descriptions which were written in the field and appear in the printed inventories of the Office of Foreign Seed and Plant Introduction. A large number of photographs were taken and extensive collections of herbarium material were made.

In a paper of this nature, limited necessarily as to space, one can only pick out a few of the more interesting plants and plant industries. As this work has been going on since the fall of 1905, some of these eastern introductions have become successfully established in the United States and are proving to be valuable additions to American agriculture. Others of later introduction have been here too short a time to enable us to say whether they will be of value. They are strictly in the experimental stage.

PROMISING NEW CROPS.

One of the most promising tree crops of China is the Chinese jujube (*Ziziphus sativa*). The most common form of this plant is found in waste places and on old walls in several parts of North China. It is a very spiny shrub or small tree bearing small, round fruits of a brown-red color, which are in general sour and have practically no value. The Chinese farmers, however, have selected numerous varieties of this jujube which vary in all possible ways. There are probably 300 or 400 named varieties in China, and while the fruit of the wild type is no larger than a small marble, some of the selected varieties are as large as a good-sized hen's egg. Some types are spherical and of very dark brown color, others being very elongated and light mahogany brown. Others again are very solid meated and can be kept for several weeks in a fresh state before spoiling. Some sorts again are of a very spongy texture and have to be eaten a few days after they have ripened, while others can not be dried, but must be eaten fresh, and still others can be easily dried and kept through the greater part of the year. A few varieties are smoked like hams or herrings and are exported from the Shantung Province to South China, where they form an especially prized sweetmeat with the people of that section. Others are put up in weak brandy and served during the New Year's holidays. One of the largest varieties when processed in a special way with cane sugar and honey makes a delicious sweetmeat comparable to a good quality of the Persian date. The high-class mandarins give them as New Year's presents, and they are served in the best hotels patronized by Europeans, on the passenger steamers plying between Japan and China, and at dinner parties in the various legations in Peking.

The jujube tree in China is one of the few trees which are not so regularly cultivated as the peach or the pear. It stands much more neglect than any other of the Chinese fruits and grows on soil which sometimes is quite alkaline in character and seems to thrive in dooryards in which the soil is packed down until almost as hard as a brick. It responds, however, to cultivation, and in the district around Pai Hsiang Chen, Shansi, where the largest varieties in all China occur, the orchards of jujube are well cultivated. In the Provinces where it is found in its greatest perfection, such as Shantung, Shansi, Honan, and Shensi, winter temperatures never drop very low. Zero weather there is a rare occurrence. In America, however, some of the trees which were introduced in 1906 have withstood a temperature of —22° F. without injury. In general the jujube may be said to be a heavy bearer, and in Texas and California some varieties have proved unusually fruitful. They bear very early. some one-year-old grafts producing as many as 24 fruits.

The jujube will probably prove of the greatest value for the semiarid South and Southwest, especially for Texas, New Mexico, Arizona, California, southern Utah, and possibly it might extend into Kansas and Nebraska. The material so far has been too limited to enable us to distribute small trees of the jujube to the latter States. Trees have fruited heavily at Chico, Fresno, Indio, and Bard, Cal., and San Antonio, Austin, and Fort Worth, Tex.

In the late thirties of the last century jujube seeds were distributed by the Patent Office, and from these seeds large-sized trees have grown and are still standing at various points in the Southern Atlantic States. All of these, being seedlings, bear small, comparatively worthless fruit.

ORIENTAL PERSIMMONS SUITED FOR DRYING PURPOSES.

In certain sections of the provinces of Shantung, Shansi, Honan, Shensi, and Kansu one finds that strains of persimmons are being grown for drying purposes only. These regions are decidedly semiarid ones, where the autumn is long and the days are quite warm, similar in this respect to the climate of portions of Texas, New Mexico, Arizona, and California. These strains are quite different—not as juicy as those which have been so far cultivated in this country. They are very astringent, so that one can not ordinarily eat them out of hand. Among these varieties for drying purposes there are seedless persimmons as well as others.

A dried persimmon in looks and taste resembles a dried fig, with the exception that it is devoid of small seeds and is coated with a heavy layer of fine grape sugar.

Dried persimmons of different varieties differ both in taste and in appearance. This difference is not due to the variety alone, but to the greater or less care employed in their preparation. The coarser sorts, upon the preparation of which little care has been bestowed, taste very much like cooked pumpkin, but those of finer quality are as fine as dried figs, being even juicier and more palatable because of the absence of objectionable small seeds.

The cultivation of persimmons for drying purposes is a growing industry in China. New orchards are being set out, and since railways have been built new markets for the sale of them have been opened. Whereas in 1908 dried persimmons on the Peking market were extremely scarce, I found to my surprise a few years later huge piles of them on sale there. Upon inquiry I found that these persimmons had come from Honan, into which Province a new railway line had recently been finished.

In drying these persimmons the fruits, when ripe, but before they have begun to soften, are peeled or slashed, and these peeled fruits are then hung on strings to dry in the sun and wind. After drying for several weeks they are put into piles and covered with kaoliang matting and allowed to cure, during which process the grape-sugar coating is formed.

Since this persimmon industry is primarily one for semiarid regions, the question of a stock which is drought resistant becomes a very important one. After having been a few weeks in China I noticed that the Chinese used a stock which was entirely different from the American persimmon and also was not merely a seedling stock. The bark was blackish in color and in old specimens deeply furrowed, whereas the bark of the ordinary oriental persimmon is of rather a smooth character and shows a tendency to peel off. Upon inquiry I found this stock was called *hae tsaõ*, meaning black jujube. This name threw me entirely off the track, for although I saw straightway that it was not a jujube, yet I did not quite know what it was. Then I made it a point to find out where this so-called black jujube grew wild. At last, in a valley north of Peking, near the Nankau Pass, I was shown wild trees of this stock. I recognized it at once as a species of persimmon (*Diospyros lotus*) which is also found in northern India, Persia, the Crimea, and the Caucasus. In the last-mentioned country it is known by the Turkish name of "ghoorma."

This ghoorma when found in its native haunts seems to be able to withstand drought and neglect to a remarkable degree, and it is for that reason, no doubt, that the Chinese have selected it as a stock. It has already proved to be better adapted to our semiarid Southwest than our native persimmon (*Diospyros virginiana*), which has been the only one heretofore used. These varieties for drying purposes budded upon the ghoorma as a stock will probably be very well adapted to large areas of land in the Southwest. Americans heretofore have never realized what an important food product the oriental persimmon is in its native country. Thousands of acres are devoted to its culture, hundreds of varieties exist there, and the trade in dried as well as fresh persimmons compares in importance with our trade in peaches.

BAMBOOS.

Of all the plants cultivated in China the bamboo is certainly one of the most indispensable. It exists in many species and varieties, ranging from tufts of a grasslike appearance only a foot or so high to jungles of giant canes often over 80 feet tall. Some are found on low, moist places, while others occur on steep, rocky slopes. Bamboos in China are grown in two ways, as clumps near the houses from which canes can be cut at a moment's notice and used for everyday household purposes, such as bean poles, switches for decorative purposes, or for repairing baskets or furniture, etc., and in large groves, often some distance from the villages, where they are grown for timber purposes only. In such groves the canes are cut only at certain times of the year, primarily in the winter months. In some sections of the country, in fact, the bamboo is so indispensable that if taken away the whole fabric of domestic affairs would crumble, and the people would be put to the most serious inconveniences. Bamboo timber in oriental countries in many ways takes the place that metals do with us, especially in the manufacture of household articles. No one can see the uses to which bamboo is put by a Chinese gardener in his little garden patch without realizing what a convenient source of stakes for pea vines, stakes to hold labels, bean poles, temporary fences, guards against chickens, shade supports, fruit-tree props, small garden ladders, stiff brooms for farmyards and barns, temporary lath houses, etc., it means to him.

A fact relatively little known to the American public is that in China and Japan bamboo sprouts constitute a favorite vegetable. There are several species and varieties the shoots of which are edible, and they are not by any means of equal excellence. A good kind of bamboo sprout is a vegetable in a class by itself. Its crispness and freshness of flavor are such as to appeal to nearly everyone the first time it is eaten. It is not uncommon to find foreigners in the Orient who have become quite as fond of bamboo sprouts as the home people are of asparagus.

The varieties which are cultivated for their shoots are generally grown in gardens close to the houses and are heavily manured so as to insure a maximum of sprouts and tenderness of texture. Existing groves of one species in the Southern States and California thrive wonderfully well and from some of them sprouts have been cut which compare favorably with those produced in the Orient. It is believed that in this country the bamboo probably can be cultivated with as great success for table use as it is in the Orient, for not only do the Chinese colonies in our large cities form a ready market for these delicious sprouts and Chinese restaurants consume large quantities in the soups and other dishes served to their customers, but also many Americans have acquired in the Orient a fondness for this vegetable and would be ready to purchase the shoots if they were available.

For impressiveness there is no group of plants which surpasses the bamboo. To wander through an extensive grove in China or Japan makes one imagine himself in another world. One naturally marvels how a grass could grow into such giant forms as one sees around him. It makes upon the human brain possibly the same kind of impression that the ordinary grass might upon a tiny insect walking through it. After having seen the beautiful and useful clumps of bamboo in the Orient one's mind reverts to our own Southern States, and the conviction gradually grows on one that in the years to come many of our southern homes will be embellished by these remarkable bamboo groves. Already a few of these are to be found—enough to show that this is not a fanciful suggestion.

THE YANG MAE TREE.

In the vicinity of Hangchow, Chekiang Province, there are extensive groves of a peculiar evergreen tree locally called yang mae, but foreigners in that section of China apply the name strawberry tree to it on account of a slight resemblance which its fruit bears to the strawberry. This is an entirely new type of fruit, locally much appreciated, and one which evidently has been in cultivation for a very long period. The tree grows wild in the mountains and bears there small sour fruits. The natives, however, have developed several varieties which they perpetuate by inarching. One of the largest of these has fruits over an inch in diameter, possesses a fine, vinous subacid flavor, and in appearance is so attractive as to make it a very desirable table fruit. These fruits, which ripen in July, are wine-red in color and resemble slightly in outline sycamore balls. They are eaten fresh or as preserves. The trees grow slowly but are long-lived, and from the scanty evidence at hand it seems likely they will thrive along the Gulf Coast and along the milder portions of the Pacific Coast.

THE CHINESE LARGE-FRUITED HAWTHORN.

In certain sections of the South, such as northern Texas, the apple appears to be out of its range. In China similar regions exist—places where the winds in summer are scorchingly dry and the rainfall often is quite deficient, such as the region around Taianfu, in the Shantung Province. It is here that one finds large and thrifty orchards of a haw (*Crataegus pinnatifida*) which bears fruits the size of a crab apple. These fruits are of a very attractive bright-red color, refreshingly sour in taste, and can be kept for very long periods. They are eaten raw, coated with molten sugar, or better yet when made into delicious preserves or a stiff jelly of fine quality. A few of the smaller fruited sour varieties can be boiled into sauce and supply a very agreeable substitute for the American cranberry. American missionaries in the Shantung Province have learned to utilize the haw in this way. The trees are of low, dense growth, bear heavily, and the finer varieties are all grafted upon seedling stocks. The demand in China for the best quality of these haw fruits is so great that it can not be supplied and the orchards are being extended. The fact that the Chinese have developed from a small-fruited wild hawthorn large-fruited forms of excellent quality naturally reminds one of the many excellent wild species of haws which occur on the North American continent, and one is impressed with the fact that an excellent opportunity to improve a promising native fruit has been neglected.

CHINESE EARLY CHERRY.

In the early spring of 1907, while near Tangsi, Chekiang Province, the Rev. A. Kennedy, a missionary stationed there, told me of a cherry which was grown in the vicinity and which, though quite small, not up to the American standard in size, was quite early. I visited with Mr. Kennedy an orchard where these cherries were grown, and, although they were leafless at the time, I recognized that they represented a different kind of cherry from the sorts we have. Scions were obtained and sent to the Plant Introduction Garden in California. Several fruit growers were provided with young budded plants, and last October, while visiting the Sacramento Valley, I found such an interest had been created by the remarkable earliness of this cherry that the growers were thinking seriously of setting out orchards of this variety only. In my opinion, this cherry has another important use, viz, as a factor in the production by breeding of earlier, large-fruited varieties.

THE ORIGINAL WILD PEACH.

During all these years of travel one thing always remained uppermost in my mind, viz, to find whether the peach really occurred wild in China, which country is supposed to be its original home.

In the summer of 1914, while going on foot through a loess ravine in the southern part of the Shansi Province, a few days' march east of Ping yang fu, I found a small, green peach the size of a marble lying on the side of the road. On biting into it I found that the stone was perfectly hard and well formed, and then on looking up I noticed several bushes clinging to the edge of a steep loess wall and having fruits on them of the kind I had found. Here at last was the original wild peach, from which probably most, if not all, of the cultivated strains have been developed. They were growing in such inaccessible, out-of-the-way places that there remained in my mind no doubt of their being genuinely wild. The Chinese, moreover, call them *yeh tao*, which means wild peach. In the Tsing-ling range from Sianfu through to western Kansu I found this wild peach at intervals, sometimes as solitary specimens, at other times in thickets.

STOCKS USED BY THE CHINESE.

The problem of finding congenial stocks for our cultivated fruit trees for different parts of this country is still in an experimental state, for certain stocks which have proved to be very successful in western Europe when tried in America have proved failures in many instances. It is in a country like China, with her great extremes of climate, resembling in this respect the United States, that we may expect to find a partial solution of this stock problem.

One of the first things which attracted my attention was that in the nursery gardens near Tientsin I found that the Chinese gardeners had grafted flowering plums upon a stock which resembled an almond, also chrysanthemums on the wormwood (*Artemisia* sp.), tea olives (*Olea fragrans*) on privet, and junipers upon the arbor vitæ (*Thuja orientalis*). These facts showed me at once that the Chinese in North China, at least, had tried to find congenial stocks which had root systems that were better suited to dry and alkaline soils than were the root systems of the plants themselves.

One of the plants which most impressed me was the almondlike stock. On asking the Chinese gardeners what they called it they gave me the name of *shan tao shu*, which means literally mountain peach tree. This name suggested the possibility of this stock being the original wild peach. Upon inquiry where this could be seen I was informed that it grew wild in the mountains, but that there were many specimens to be found in the gardens of Tientsin and Peking. Upon being shown a specimen I found it to be the *Amygdalus davidiana*, originally discovered by Father David. This turned out to be a new stock never before employed by any of the Caucasian races, although seemingly in China it has been used for centuries as a stock for various stone fruits. It has even been introduced into various European and American botanical collections. After some difficulties seeds were procured of this *davidiana* peach, by which name it has come to be known in this country, and these have been tested in various places in the United States, as Chico, Cal., Ames, Iowa, and San Antonio, Tex., and, strange to say, they have proved hardy on the northern edge of the peach belt of Iowa and drought and alkali resistant in central Texas, Arizona, and California. It seems as though it would play an important rôle in the development of the stone-fruit orchards of the country.

The common stock for the pear on sandy and alkaline lands in North China is a species of wild pear (*Pyrus betulaefolia*), which bears bunches of fruits the size of large peas and is propagated mostly from cuttings. Trees grown in this country under uncongenial conditions have proved to be well suited to dry and alkaline situations. Unfortunately, however, it recently has been shown to be susceptible to the destructive pear blight, a disease apparently unknown in China.

While these furnish examples of the stocks already used by the Chinese, numerous wild plants, especially among the stone fruits, show promise of being valuable as stocks, and experiments with these now are being carried on in the United States to determine their relative value.

ORNAMENTAL TREES AND SHRUBS.

So many ornamental trees and shrubs have been obtained from China, especially during recent years, that I mention here only a few of those which were introduced as a result of these explorations and are proving distinct additions to American horticulture.

The Chinese pistache tree (*Pistacia chinensis*) gives promise of being a fine shade tree for large areas in the South and Southwest. It grows to be a stately tree with a dense head of gracefully pinnated foliage, which when it comes out in spring is a wine-red color, in midsummer dark glistening green, while in fall it turns into the most gorgeous flaming reds and yellows, making the tree a very conspicuous object in the landscape. It resists drought wonderfully well and will be especially appreciated in the warmer semiarid parts of the United States.

An elm (*Ulmus pumila*), native to Manchuria and North China, which in its native haunts resists drought and alkali to a considerable degree, proves to be of remarkable vigor and of great promise as a shade tree and windbreak in North Dakota and other regions in the Upper Mississippi Valley, where trees have a hard struggle with the climate.

The Chinese white-barked pine (*Pinus bungeana*) is undoubtedly one of the most striking in appearance of all the pines, with its glistening white trunk and its rather airy tufts of needles. It is decidedly a tree for semiarid regions, where it shows its characteristic white bark much earlier than it does in damp climates. When seen on burial grounds in North China its impressiveness is unsurpassed, and it might become in the future a favorite tree with Americans for use in cemeteries and formal parks and private grounds. Until 1914 this remarkable tree was supposed to occur wild only in the Province of Hupeh, but I discovered it scattered and in groves in southern Shansi, central Shensi, and southwestern Kansu.

A striking variety of willow with a naturally well-rounded head occurs near Peking and in the Shantung Province. It withstands drought, alkali, and cold remarkably well, and a clump of them is already growing in California, where the trees have received a great deal of attention because of their trim and formal appearance, which makes them peculiarly attractive.

Of the many shrubs useful for gardens and dooryards one of the most interesting is the yellow-flowered rose (*Rosa xanthina*), which occurs in its semidouble form cultivated in gardens in Peking, while the single form occurs wild in the mountains of Shansi and Shantung. The bush is remarkably hardy and drought resistant, and in spring it is covered with a multitude of medium-size pale-yellow flowers. As a factor in the creation of new types of yellow roses it will probably be of importance; in fact, Mr. G. W. Oliver, of this department, informs me that he has already produced a hybrid between it and the *Rosa rugosa*, of the type of the *rugosa* but with yellow flowers.

CHINESE VEGETABLES.

While there are a great number of different vegetables in China, the great majority of them do not appeal to the palate of the Caucasian. There are some, however, which are worthy of the attention of American gardeners. The best of them is the *pai ts'ai*, or Chinese cabbage, which is grown primarily in northern China. The cabbages from Shantung especially are noted for their fine quality and are exported extensively along the coast of China even as far as Canton. These *pai ts'ais* do not emit as strong an odor when cooked as does the ordinary cabbage. They are delicate in flavor and are considered to be more easily digested. They can be used in a number of ways, resembling in this respect ordinary cabbage. It might be classed as a vegetable somewhere between Swiss chard, Romaine lettuce, and the ordinary white cabbage. Its successful establishment in the United States appears to have been already accomplished, and on several of the large markets it is being sold under the name of celery cabbage.

GINGER.

Fresh ginger is an article of food in China which one can buy in practically all of the larger markets during the greater portion of the year. The rhizomes are sold by weight and are eaten shredded or sliced in soups and in various meat dishes, and they impart a delicious and appetizing flavor.

Ginger is of great antiquity in China and was known quite well several centuries before the commencement of our era.

Kung-fu-tse, or Confucius, as his name is Latinized, China's greatest philosopher, stated in one of his discourses to his students that every person ought to eat ginger at least once a day for his health's sake.

It is rather surprising that ginger is so little used in American cooking. Several of our dishes could be much improved by a judicious use of fresh shredded ginger, and in our Southern States the plants might be grown in kitchen gardens without much trouble.

There are several varieties of ginger in China; the most productive sorts have to be grown in wet soil, and they need a long, hot summer in which to grow to perfection. It is mainly around Canton, in South China, that such sorts are grown extensively, and from that region tens of thousands of dollars' worth of preserved ginger is exported every year to various parts of the globe. However, there are also varieties that can be grown in much cooler localities and relatively dry soil. On one of my trips in the Shantung Province I found a large field of such dry-land ginger near Ninyang at 36° latitude. In this latitude in the eastern United States we find such cities as Knoxville and Nashville, Tenn. In the truck sections along the Atlantic we may find conditions favorable to the cultivation of ginger commercially and make ourselves independent of foreign importations.

Ginger, culturally, must be treated in much the same way as sugar cane, especially as regards storage during the winter; the rhizomes are injured by light frosts and can not stand drying out. It is not unreasonable to expect within a few years a keen interest in this interesting new root crop.

THE KAUBA, A NEW CHINESE WATER VEGETABLE.

One of the most interesting phases of Chinese agriculture is the way swamp lands are being made to yield crops. The Chinese as a race do not object to laboring in mud and in water as the Caucasian peoples do; hence, rather than drain their marsh lands, they have selected crops for them that ng in good returns.

Among swamp-land crops, rice of course stands out primarily, and in addition to it there are various root crops such as the lotus (*Nelumbium speciosum*), the water nut (*Eleocharis tuberosa*), wet-land taro (*Colocasia antiquorum*), and arrow-leaf (*Sagittaria sinensis*). A crop which is grown as a vegetable in many parts of China is the kauba (*Zizania latifolia*), a water grass very closely related to our own wild rice. It is not the seeds, however, nor the leaves, but the swollen fleshy stalks that are used. These are eaten, shredded or sliced, boiled in soups, or, when scalded, as a special salad.

This kauba is planted in rows and cultivated regularly and must grow in at least a few inches of standing water. An immense trade in its succulent shoots is carried on every season. Foreigners often call it water bamboo, and some western residents in China have become so fond of it that they have it on their tables whenever procurable. Some preliminary experiments made in this country show that this new water vegetable may possibly become some day a source of income to such truck farmers as are willing to engage in its rather disagreeable culture.

CHESTNUT-BARK DISEASE.

One of the duties of an explorer is to keep a careful lookout for plant diseases, insect as well as fungous, and during the six years of travel in China several of interest were discovered, the most important one of which was the chestnut-bark disease. It was found, for instance, that the chestnut blight (*Endothia parasitica*) exists on the chestnut of North and central China (*Castanea mollissima*), while in Japan it was found in abundance on the native species (*Castanea crenata*). In both countries many of the trees attacked show themselves remarkably resistant and great hopes are entertained that by careful selection and hybridization work chestnut strains can be created which will prove to be either wholly immune to this destructive bark disease or at least so resistant as not to be damaged very severely. The hybrids which Dr. W. Van Fleet has already produced in this country indicate that this is a promising field for the plant breeder.

In conclusion, I may be permitted to state that one of the most gratifying sensations of an explorer is that of coming back to this country and finding that certain of his new introductions are growing successfully and are appreciated by his fellow citizens, and that, moreover, some quite new industries are in process of evolution, based upon material which one has himself sent in from some foreign land.

HOW THE WHOLE COUNTY DEMONSTRATED.

By Bradford Knapp, *Chief*, and Jesse M. Jones, *Agriculturist and Field Agent, Office of Extension Work in the South, States Relations Service.*

AGRICULTURAL evolution has not been slow in Christian County, Ky. Four years ago a business men's association was formed and immediately became interested in agriculture; a county demonstration agent was appointed in July, 1912, since which time 18 community clubs with 700 members have been formed; a good-roads association is responsible for the farmers' ownership of 250 split-log drags with which they keep in condition upward of 400 miles of road; the agent has demonstrated methods which have led to increased crop yields, introduced new crops, readjusted farm practice, established demonstration farms, induced the feeding of more beef cattle, augmented dairying, organized the county and fought hog cholera effectively, obtained wider markets for farm products and brought city and farm business men into closer relations.

Christian County has grown from the standpoint of business, but it also enjoys more social activities. It is located in the southwestern part of the State, in what is familiarly known as the "Pennyroyal" section. Its population, according to the census of 1910, was 38,485, an increase of less than a thousand in the 10-year period. The last census also shows that there are 3,900 farms in the county, 56.9 per cent of which are operated by owners and 42 per cent by tenants. The average size of farms is 107.1 acres, of which 77.5 acres is improved land. Ninety per cent of the land of the county is in farms and 72.3 per cent of this farm land is improved. Hopkinsville, the county seat and chief town, had a population, according to the same census, of 9,416. Pembroke, 731, and Crofton, 402, are the towns of next importance in the county. The chief industry is agriculture, there being relatively few manufacturing enterprises.

Prior to four years ago the usual organizations were interested in public-welfare movements, and progress was relatively slow and with frequent back sets. About four years ago the Hopkinsville Business Men's Association was

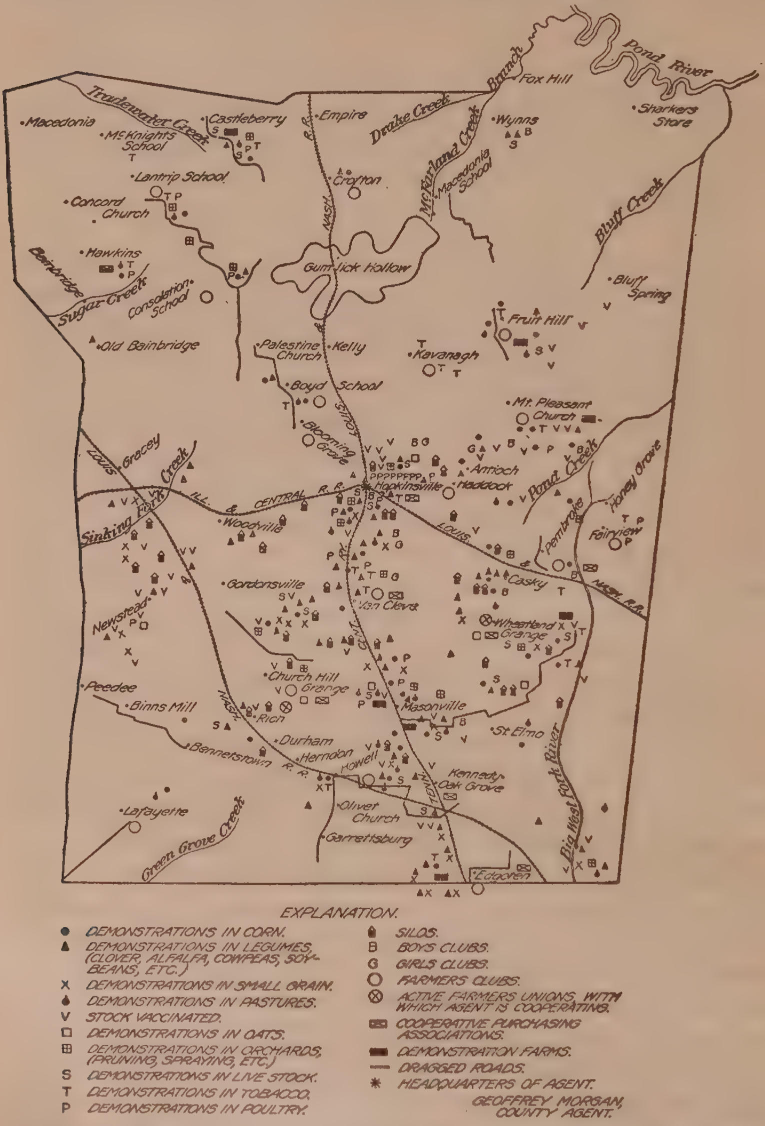

FIG. 5.—Christian County, Ky.—Partial representation of activities of the county agent, showing character, distribution, and centers of organization.

formed and adopted for its main work the development of the resources of the county. This association was deeply interested in the agriculture of the county. Similar organizations prior to that time had been chiefly interested in trying to locate factories and other industries. Repeated attempts to arouse the agricultural interests were made through speaking campaigns, but the farmers took relatively little interest in efforts of this sort.

The first effort of the present association was again to organize lecture courses throughout the county to instruct the farmers. Although prominent speakers were chosen, these courses were failures because the farmers did not attend. In 1912 the organization became interested in securing an agricultural agent to work in the county. A so-called "crop improvement association," composed of a few farmers and some business men, was formed under the auspices of the Business Men's Association and as an adjunct of it. They secured some financial aid from outside the county and were able to interest the fiscal court to appropriate some funds. With these and the cooperation of the United States Department of Agriculture an agent was appointed July 1, 1912. At that time the farm-demonstration work of Kentucky was under the supervision of the Office of Farm Management in the United States Department of Agriculture. On July 1, 1913, it was transferred to the Office of Farmers' Cooperative Demonstration Work, which had charge of the work in the Southern States, and is now known as the Office of Extension Work in the South. Cooperative arrangements were perfected, effective July 1, 1914, under the Smith-Lever Act, by which the county agent became the representative of the College of Agriculture of the State University of Kentucky, and also of the United States Department of Agriculture, States Relations Service, Office of Extension Work in the South. From that date until the present time a county agent has been continuously employed in the county.

One of the several difficult problems confronting the county agent was social and economic more than agricultural. It would be impossible in this article to trace the causes of this condition or to explain the reasons for its existence. Suffice it to say there was a lack of cordial feeling between the farmers and the business interests of the towns in that county. At certain periods of time this feeling had been somewhat intense. The statement is made simply to show the situation facing the county agent. Members of the association and business men in the cities and towns simply placed themselves behind the agent, introduced him to the people so far as they could, and advised him as to what they deemed to be the real problem. The attitude of some of the farmers may be understood from a statement of one farmer who said that the whole movement was "absolute foolishness."

The county agent set out to become personally acquainted with the people and their problems by communities. He usually visited in a neighborhood, called a few of the principal farmers together, stopped with them over night, and endeavored in every possible way to understand their views and their problems. Usually these few men who attended the meetings and conferred with him were induced to become demonstrators and to undertake to do some specific work in crop production upon their own farms under improved methods. By increasing the interest the agent gradually worked each community into the idea of having some community organization. He was greatly assisted in this by the fact that one community had a very good organization, the Church Hill Grange, formed in 1873. This grange had done excellent work in the years gone by, especially in conducting stock sales.

Membership in these little community organizations, started by the county agent, included the entire family, the women being invited to attend as well as the men. As each club was started with relatively few families, each member was required to bring a neighbor, and thus the membership expanded so that each club showed a steady growth. There were practically no by-laws and no elaborate forms. No membership fees were required, and when any expense was incurred a free-will offering was taken to cover the amount. Constant effort was made to inculcate the idea that these clubs were of importance, and that they were entirely controlled by the members in the interest of the farmers. Besides the regular meetings held, these clubs were used to promote all kinds of educational work. The county agent visited neighborhoods regularly, looked over the farms during the daytime, and often called the farmers together at demonstration fields being conducted by farmers under his supervision. In the evening he attended and assisted in the meeting of the local community club. At times the women took charge of a meeting, the entire program being devoted to their problems. The business men were interested in these clubs and the community idea of organization, and often came out to assist in the meetings. One prominent citizen who is a member of these clubs said: "I have not missed a meeting since the club was organized. Before its organization the neighbors hardly knew each other." Another said: "Since these associations were formed there has been wonderful improvement in farming conditions. Farmers are all studying and reading and realize at last that farming is an extremely intellectual calling." The total number of organized clubs is 18, with a total membership of more than 700.

The county agent traveled about the county with a horse and buggy. He often took the best men in the county with him in his work. As it was necessary to cover the entire county, it soon became apparent that one of the chief needs of the county was better roads. Hence, a "good-roads association" was formed for this purpose. Meetings were held, ending in a barbecue given by the business men of Hopkinsville to the farmers of the county. There was a large attendance of country people and a great forward step made in bringing about a better feeling between them and the town people. Now there are 250 split-log drags in operation in the county, the larger part of which were bought by the fiscal court and donated to the farmers. These, as a rule, are operated without cost to the county, largely through the instrumentality of these community clubs. Practically 400 miles of road are now regularly dragged by the farmers free of charge. The merchants at Hopkinsville have offered prizes to the farmers for the section of best dragged road in the county. There are 350 miles of macadamized roads, in the construction of a large part of which the farmers cooperated. The president of the Business Men's Association says "The farmers cooperated, giving one-third to one-half or possibly more, for the construction of pikes." A "good roads day" was held in response to a proclamation by the governor, and in Christian

County it met with hearty response. Business men turned out with the farmers, stores of the city were closed, and on one of the principal roads at least 90 per cent of the workmen were city men. Stone was contributed by contractors, concrete firms furnished men gratis to repair bridges, one company supplied outfits for trimming trees, and a large amount of work was done by the county and the town working side by side. Forty carloads of crushed rock were moved from one spot during the one day, which shows the great number of workmen and teams at work. Such results could only be accomplished through unity of purpose and cooperation of all the people.

The principal crops of the county are corn, tobacco, and wheat. The census shows that from 1900 to 1910 there was a slight increase in average yield per acre of corn, amounting to four-tenths of a bushel. The county did not produce enough to supply its own needs, and the method of cultivation was generally with the turning plow and deep enough to injure the roots and prevent full production. Among the first efforts of the county agent, therefore, were demonstrations in better methods of corn production conducted in every community in the county. The first of these was in the year 1913. The average of the county before this was a trifle over 24 bushels per acre. These demonstrations averaged 38.8 bushels per acre. The next year they averaged 40 bushels per acre. At the present time 80 per cent of the corn in the county is cultivated by modern, improved methods, and with modern implements (Pl. XXXVII, fig. 1). One section of the county, which has been importing 40 carloads of corn annually, this year supplied its own needs and exported 8 carloads.

Many farmers thought that because a large part of the county was of limestone formation no addition of lime to their soils was necessary. Upon examination of the soil and a study of crops its use was urged. The county agent arranged a lime-crushing demonstration, and as a result 10 limestone crushers have been purchased, either individually, in partnership, or by communities. In addition considerable lime has been shipped in from outside the county. Three hundred tons were used in 1913. In 1914 this increased to 5,315 tons; in 1915 to 10,555 tons. The effect of the application of ground limestone rock and agricultural lime to the crops was demonstrated.

Special mention should be made of its application to red clover, which before this time had been a practical failure on many farms, and only a partial success on others. Many demonstrations were conducted to show the effect of applying lime to this crop. The instructions of the agents were also followed as to time and method of sowing, use of additional fertilizer, etc. Now practically all farms in the county are able to grow the crop successfully, because of the lessons learned.

Many people in the county think that the best work done by the agent in crop demonstrations was the introduction of crimson clover, for the improvement of the land and as a cover crop. In 1912 no crimson clover was sown. The next year 350 acres were sown in demonstrations on various farms. In 1914 the acreage increased to 5,580, and in 1915 to 7,800, whole neighborhoods having sown it generally.

As not enough corn was raised to supply the demand, the growth of barley was recommended for a number of reasons, especially because in this county it yields almost twice as much as wheat, furnishes more grazing, makes possible a second crop of corn, beans, peas, etc., and gives a better distribution of labor. The census of 1910 showed 10 acres of barley in the county. In 1912 there were 20 acres. In 1913, the first real year of demonstration, there were 250 acres. In 1914 this had increased to 3,600 acres, and in 1915 to 7,000. Farmers, business men, and the milling companies of the county heartily approve of the growing of this crop.

Fertilizer and variety tests of wheat were made by the farmer under the direction of the county agent. The results of these tests have been put into application on many farms, and where used to-day the average yield is practically doubled.

Some attention has been paid to tobacco, the chief cash crop of the county. The average yield of demonstrations more than doubled the average production of the county. The object has been to increase the profit in the production of tobacco by readjusting the entire farm practice so as to equalize the labor load, produce home supplies, maintain soil fertility, and have a number of other cash products for sale.

Alfalfa has also been introduced and is now being successfully grown on 22 farms as demonstrations. There are 360 acres in the county. Its growth is not extending more rapidly for several important reasons, the chief one being because the cuttings come at such times as to interfere with the busy seasons on the farm. It is therefore not a popular crop in the county, and its place is mainly taken by red and crimson clover. Other crop demonstrations have been with sweet clover, turf oats, soy beans, rape, pastures, orchards, truck and whole farms as demonstrations. In nine communities of the county entire farms are used as object lessons, the farmer pursuing the instructions of the county agent on the entire farm.

The introduction of more and better live stock has not been neglected. A creamery was started April 1, 1914. The number of patrons at the start was 7 and the number of cows 40. By the end of the year there were 59 patrons with 600 cows, 73 cream separators had been sold, and 350 head of dairy cows were being fed under the instructions of the county agent. In 1915 there were 95 patrons.

To arouse a greater interest in beef cattle the county agent, early in the work, piloted a representative body of farmers to a near-by county to study feeding methods. This trip, together with personal efforts, resulted in an increased number of pure-bred cows, from 10 in 1912 to 100 in 1915, and in the number of cattle fed from 250 in 1912 to 1,800 in 1915. Eight regular demonstrations in the feeding of cattle for market were conducted.

Interest was aroused in the erection of silos. In 1910–11, or before demonstration work started, there were 12 silos; the report of the Commissioner of Agriculture in 1912–13 shows 36 silos in the county, 30 of which were wood and 6 concrete. The annual report of the county agent for the year 1914 shows total number of silos in the county 66; the present number is 101.

Poultry raising received attention. Twenty-six farmers started pure-bred poultry production. A committee of Hop-

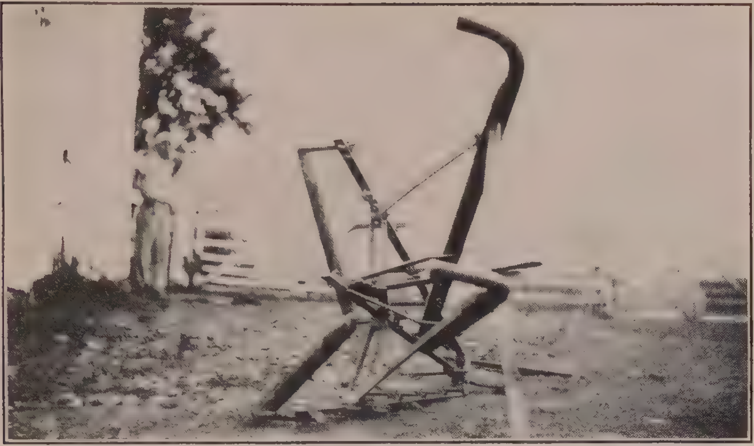

FIG. 1.—ATTACHMENT FOR ORCHARD HARROW INVENTED BY COUNTY AGENT.

Over 1,000 of these are in use in Christian County, Ky. Note the weed-cutting bar attached to back cultivator teeth.

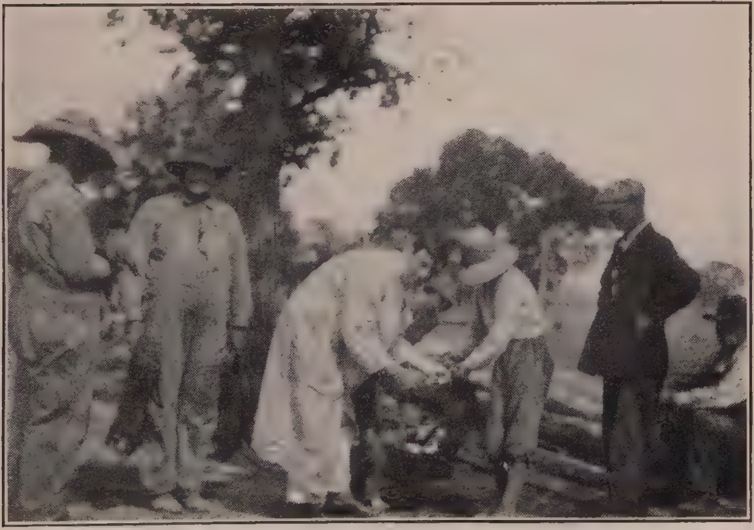

FIG. 2.—CHRISTIAN COUNTY (KY.) AGENT INOCULATING PIGS WITH ANTIHOG-CHOLERA SERUM.

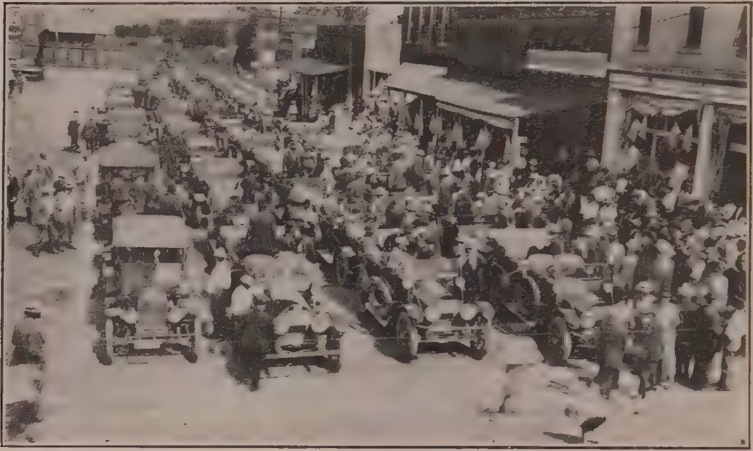

FIG. 1.—AUTOMOBILES READY TO CARRY PASSENGERS ON TOUR OF INSPECTION OF FARMS IN CHRISTIAN COUNTY, KY.

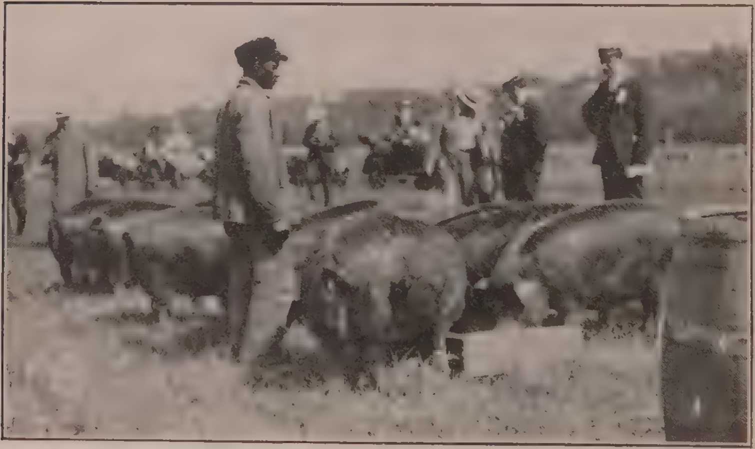

FIG. 2.—FARMERS INSPECTING YEARLING GILTS WHILE ON TOUR OF CHRISTIAN COUNTY, KY.

kinsville business men assisted in this work. Prizes were arranged for at the fair. The first show was held in 1914 with 840 entries. In 1915 there were 1,490. Poultry buyers estimate that turkey production has increased 100 per cent and chickens 40 per cent.

Perhaps no piece of cooperative effort shows the influence and effectiveness of the community organization of the county better than the work done in the eradication of hog cholera. The subject of hog cholera was discussed with the community clubs during the early stages of the county agent's work. A careful survey made in 1912 showed the losses that year to be $225,000. The county agent not only demonstrated the use of the serum treatment himself, but arrangements were made with 11 doctors to inoculate hogs free of charge (Pl. XXXVII, fig. 2). A number of farmers also gave their services. Arrangements were made with the State serum plant at the experiment station at Lexington to supply the serum in sufficient quantities, and proper storage was provided at Hopkinsville. Farmers were instructed to report all cases of sick hogs to the president of the farmers' club. The president of the local club then made the arrangement by telephone for prompt inoculation and cleaning-up of the premises. This method of procedure has brought the disease under absolute control in three years. In 1913 the losses were reduced to $150,000. In 1914 the losses were practically $1,000. There are now more hogs in the county than ever before in its history, and the disease seems to be under complete control (Pl. XXXVIII, fig. 2). Effective organization and cooperation of all the people are mainly responsible for these results.

Another item that shows organization work and the complete cooperation of all the people of the county is the development of a better market for hay, oats, corn, and barley by the erection of a feed-mixing plant in 1914. The mill interests of the county now consume a larger amount of the wheat produced in the country. One of the mill men recently said: "Five years ago 50 per cent of the wheat was shipped out of the county as grain; in 1914 this was reduced to 15 per cent, and in 1915 not over 5 per cent. The remainder was sold in the county for milling purposes."

Other items of organization work have been as follows: A fair association has been formed; medical instruction has been introduced into the schools of the county; a public library and hospital have been built; the school system of the county has cooperated in all educational work; both town and country merchants have offered prizes to members of the boys' clubs; also for cooking in the schools, and have put women's rest rooms in the stores for the use of the public. This step was appreciated and the rooms are quite heavily patronized.

A woman agent in charge of the girls' canning clubs in home demonstration work was appointed in the spring of 1914. There is now an active girls' canning club in every community in the county, attended by the girls and also by their mothers. The surplus fruits and vegetables of the farm are now being canned and preserved for winter use. To-day there are 12 social clubs which meet regularly in the country, 15 parent-teachers' and mothers' clubs, and there is not a school in the county which does not have some form of community meeting. The schoolhouses are generally used for the meetings of the community clubs. In some instances farmers have given sufficient ground for amusement purposes at the schoolhouses. Here may be found the ball diamond, tennis courts, and basket-ball courts. Both country and town people are beginning to believe that country children have as much right to a good time as those of the town.

Another instance of organization work is the cooperative purchase of commercial fertilizer. Through no fault of the merchants, but due to a system in existence all over the State, farmers were buying their fertilizers partly on credit and partly for cash, but almost invariably at retail rates. The farmers' clubs became interested in cooperative purchase of supplies. By community action federated into a county-wide movement, more than 3,000 tons of fertilizer were purchased in one year, resulting in a saving of approximately $3 per ton. In this work they have been assisted materially by local merchants who have acted as distributors and practically as underwriters of the whole proposition. At present, instead of buying indiscriminately by name or brand, farmers have learned to buy the plant food shown to be needed by their soils and crops. This is generally done under the instructions of the county agents. The merchants have been brought to see the necessity of making the farmers prosperous. One of them said that, while he did not make as much on the sale of fertilizer as formerly, he dealt for cash, which saved the farmer money, and enabled him to reap his reward in an increased sale of farm implements in which he is also engaged.

Because of three bad crop years the bank deposits of the county do not show a material increase. However, their surplus and profits have increased an average of 30 per cent, and dividends have been raised from 5 and 6 per cent to 8 per cent, or maintained at the latter figure.

The office of the county agent is with the Business Men's Association in Hopkinsville. There the farmers are brought into touch with business men. The agent is able to assist by keeping them advised as to conditions and the needs of the farmer, and in this way they are able to anticipate the needs of their customers and handle stocks of goods accordingly.

During the early summer of 1915 the extension division of the State, representing the college and the United States Department of Agriculture, arranged for a visit of several hundred farmers from counties of central and eastern Kentucky, escorted by their respective county agents, to Christian County to inspect the work of the past three years. The farmers and business men of the county joined heartily in this movement. At once they proceeded to "put their house in order" for a visit. The itinerary of the party through the country districts was planned. The farmers thoroughly dragged every foot of the 100 miles of road to be traveled by the party. Not only was this done, but the yards were cleaned up and placed in good order; the sides of the road were mowed; the weeds were cut under the fences and back to the growing crops, and arrangements made to have farm live stock at convenient points for the inspection of the visitors. One hundred automobiles were furnished and driven by the business men of the county (Pl. XXXVIII, fig. 1). Even repair cars were provided in cases of breakdown. Farm gates were left wide open and part of the route lay through the farms themselves. Refreshments were served to the visitors at various points and free banquets and entertainments furnished by the people of the city as well as by some of the farmers. Stops were made at certain of the farms where the county agents, other extension workers, and farmers explained the improvements made and the system of work pursued in the county. Three public meetings were held during the day.

The visitors fully appreciated and understood the great agricultural improvement in the county. A distinct impression was made by the public spirit, the aroused county consciousness of the people of Christian County. Country people and town people vied with one another in extending hospitality, and in manifesting their constant pride in their homes, their farms, their business, their peaceful surroundings, and in the things accomplished in the county during the three years. A bank president said: "Every man can see improvement in conditions and a better feeling between town and country. This is attributable to the demonstration work carried on by the United States Department of Agriculture and the agricultural college. Banks no longer own farmers; the farmers own the banks." A director of the Business Men's Association said: "The spirit of cooperation began in the country and not in the city. This demonstration work has helped business in Hopkinsville 25 per cent."

A successful farmer said: "There has been a revolution in sentiment between the country and the town people, as well as in farming. City men leave their business and go to Washington in an effort to tender the farmer financial relief. Farmers respond to every call of the business men for cooperation."

A business man said: "A few years ago all kinds of jealousy and bad feeling existed; now nothing but the best of feeling for the other's welfare. Many people in the county say the town and the country are one."

While it is true that improvement begins with the individual, there is such a thing as the public conscience being aroused to improve general conditions. The effort to improve Christian County began with a few. It took hold of families in the scattered communities of the county. It touched farms, then neighborhoods, then communities.

The spirit of the new agriculture, and especially of labor intelligently applied to farm problems, and the great spread of this educational movement which brought men and women together, finally took hold of the whole of Christian County, and Christian County to-day stands as a demonstration of the effect of education and organization under the proper leadership. The people were taught to be self-reliant and to do things themselves. The result: A whole county demonstration, or better agriculture, better business, and better living.

Let us examine the work in another county.

CULPEPER COUNTY, VA.

Culpeper County, Va., is located in the northern part of that State, in the heart of the Piedmont section. Except for a little lumbering, the county is entirely devoted to agriculture. The principal town is the county seat, Culpeper, with a population of 2,000. Other important centers are Rapidan, Brandy, Lignum, Mitchell, Stevensburg, Boston, Rixeyville, Jeffersonton, and Eggbornsville.

In November, 1910, the fiscal court was invited to cooperate financially with the United States Department of Agriculture in securing a county agent. This invitation was accepted unanimously, and in March, 1911, one of the successful farmers of the county was appointed. Since that time there has not been a vote against the appropriation, which is renewed annually. The amount voted has been increased four times and the same agent has been continued in the work.

While the fiscal court was well aware, at the beginning, of the value of demonstration work to the county, the farmers were not so receptive. No doubt they felt that they were doing well enough, and with good reasons, as the census report for 1910 shows that out of 1,615 farms, averaging 134.9 acres each, 1,415, or 87.6 per cent, were operated by owners; 1,131, or nearly 80 per cent, of which were free from mortgage. This spirit of aloofness has been replaced by most cordial and hearty cooperation; to-day invitations are extended the agent on every hand. At first he had to spend from 4 to 5 hours to secure the cooperation of a farmer; to-day the calls upon him for assistance—by day and night, by letters, telephone, interviews, and visits—require all of his time.

After a careful study of conditions the county agent and those supervising him decided that their program of work

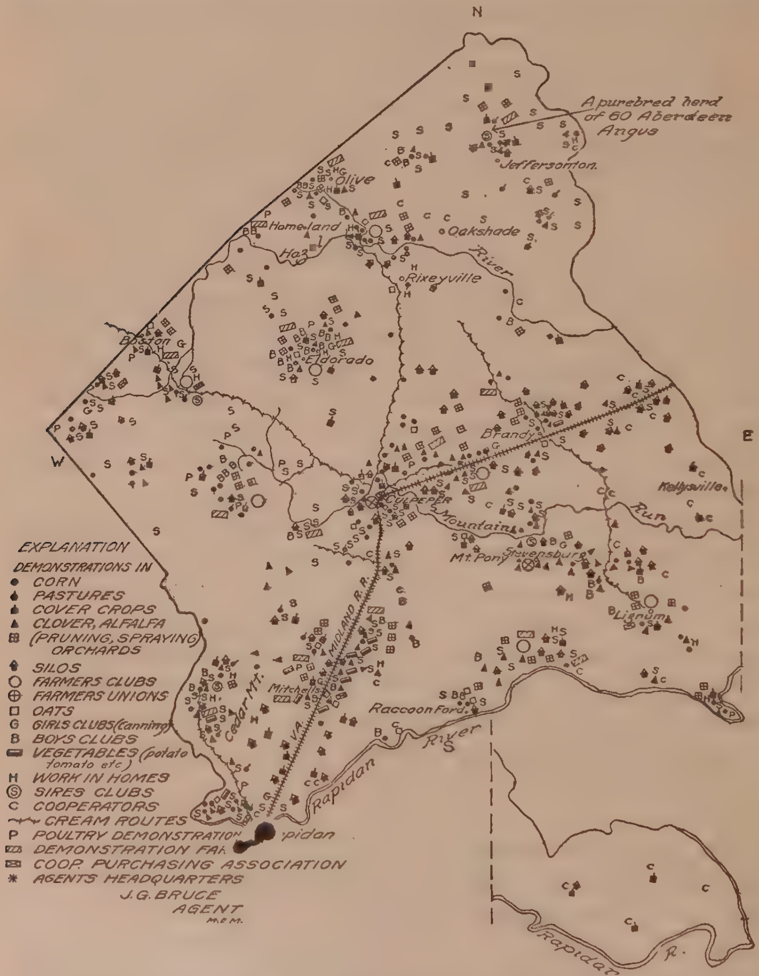

Fig. 6.—Culpeper County, Va.—Partial representation of activities of the county agent, showing character, distribution, and centers of organization.

should be directed toward the betterment of all lines of farming supporting the growing of live stock, which even before that time had been the greatest agricultural industry of the county. It was also decided to try to improve home conditions. In the former endeavor, naturally they turned first to the corn crop and sought to improve it in uniformity by selection of seed and in yield through the introduction of more productive varieties and proper cultivation of the crop, for as one farmer says: "Hardly a half dozen men in the county had improved corn." The average yield of the county as reported by the Bureau of the Census for 1900 and 1910 was 23.67 and 21.01 bushels, respectively. The first year only 22 demonstrators with corn were secured. On 95 acres they averaged 48 bushels per acre, a few making over 100 bushels. A part of the regular work has been the continued demonstrations in better methods of corn production each year. The second year 33 demonstrators on 402 acres averaged 70.6 bushels; the third year 49 demonstrators on 274 acres averaged 50.7 bushels; the fourth year 108 demonstrators on 389 acres averaged 65.5 bushels. During those 4 years 212 demonstrators on 1,160 acres averaged 58.7 bushels per acre, or 37.69 bushels above that reported for 1910.

In addition to the demonstrators who followed instructions carefully and were visited by the agent regularly, every year cooperators and farmers on over 5,000 acres have followed the same directions and increased their yields correspondingly, although no visits were made to them.

In 1914 a "five-acre club" of 40 farmers was formed, each one to grow a 5-acre field of corn to determine what amount could be raised on that area. Reports showed an average of 72 bushels per acre. One young man grew 643⅓ bushels, or 128.66 to the acre, on his field. Reports for 1915 are not yet available.

In the beginning of this work a number of farmers would not plant the new varieties of corn; to-day, however, reports from every section of the county as to the men who are using improved seed corn put the increase all the way from 50 to 100 per cent, 10 of these estimates averaging 83.8 per cent. "There has been a big change in the kind of corn. It is harder, more uniform," says a local grist miller. A county commissioner expresses the situation and influence of the work as follows:

> Five years ago I thought just so we had a big chunk of an ear it was all right. To-day I am very careful in the selection of seed corn

to get the right type, size, etc. This farm never made as much corn before, and I've known it 72 years. To-day in traveling over the county one sees everywhere well-selected ears of corn hanging in the cribs, barns, porches, and kitchens. This was rarely to be seen five years ago.

Averaging the statements of 10 representative men gives an increase in the yield of corn over the entire county of 22½ per cent. One said: "There might have been 100-bushel yields before in this county, but we never heard of it."

The boys' corn-club work, which was started by the agent the first year, has also been an important factor in the improvement of corn in the county—in fact, the county agent thinks "it is the best part of demonstration work and has done the most good." During the five years 278 boys have enrolled. As the results for 1914 are typical, they are given herewith. Of the 48 boys enrolled that year, 37 reported yields varying from 23½ to 140 bushels per acre, or an average of 75.7 bushels, at an average cost of 22.9 cents. In the five years, 26 boys have made over 100 bushels per acre apiece.

The results of this work with boys in the county have not stopped with the crop itself. Many club members have been able through the money secured from their corn plots to go to high schools and colleges. A prominent principal of a high school says: "As a whole, club boys stand first in average in records made and deportment." Records show that 55 per cent of the prize money received by boys was deposited in bank or invested in something productive, such as land or live stock. Several fathers said: "The influence of this work upon the boys has been good. They are more interested in farming, see and feel there is more to work for, and are staying on the farms." To this a farmer who has had boys in the work from the beginning adds: "It has done the men more good than the boys, because while apparently not paying attention to the boys' corn clubs, they are trying as hard as they know how to beat the crops made."

It has always been the practice of the agent in Culpeper County to follow out a definite plan of work, often mapped out several years in advance. In the interest of more and better live stock, more forage was necessary as well as more grain, and to this end he has conducted systematic demonstration campaigns for the introduction and increase of alfalfa, meadows, and pastures, respectively, through successive years.

What was almost literally a beginning with alfalfa was made in the fall of 1911, since at that time only two patches of this crop were being grown in the county, and they were partial failures. The agent started 2 acres on his own farm, and induced four or five other farmers to do the same thing, in order to learn the best practice to follow. All succeeded. In 1912 these methods were applied to 40 plots, well located, 2 square rods each in size. These demonstrations were visited by farmers from all over Culpeper and a number from adjoining counties, in one instance by 500 men in all. In 1913, 400 acres were sown to alfalfa. In 1914 this was increased to 1,000 acres and in 1915 to 2,000 acres. Alfalfa is not only used alone, but the seed is added to hay mixtures recommended by the county agent and produced by farmers under his instructions.

Probably the most prominent example of the success of alfalfa growing in the county has been the demonstrations on a large dairy farm. In 1915, 67 acres were sown on that farm, and the following statement will show results on only 6 of these acres:

May 29, first cutting, 25,955 pounds dry hay; by cash at $16 per ton	$207.66
June 29, second cutting, 25,680 pounds dry hay; by cash at $16 per ton	205.44
July 30, third cutting, 6,560 pounds dry hay; by cash at $16 per ton	52.48
Sept. 2, fourth cutting, 18,870 pounds dry hay; by cash at $16 per ton	150.96
Oct. 2, fifth cutting, 16,500 pounds dry hay; by cash at $16 per ton	132.00
Total cash receipts	748.54

Total number tons, 46.78¼; 7.797 tons per acre, at $124.75.

Work with meadows was started by the agent the second year, 2,000 acres being sown to grass mixtures adapted to the various soils of the county. These yielded an average of 1½ to 2 tons per acre. One man put 2 acres of an 18-acre meadow under the direction of the agent, and cut more hay from them than from the other 16. One farmer says: "The demonstrators in my locality are making from 2 to 3 tons of grass per acre, and those following ordinary methods 1 ton or less." A real estate man and a loan agent, both well acquainted with the county from traveling over it, say that they see a wonderful improvement in grass, and that there is more grown than ever before.

In 1913 the work with permanent pastures commenced. Nine farmers seeded or renewed 300 acres, under the personal supervision of the agent.

During 1914 and 1915 a large number of pastures have been renovated by the use of methods proven successful. A great many farmers say their pastures will "carry" double the number of cattle formerly grazed on them.

A part of the program for the growing of more feed crops for live stock has been to sweeten the soil by the use of lime and to teach the more judicious use of commercial fertilizers. Available figures show that the shipments of lime into the county have increased from 1,130 tons in 1912 to 6,966 tons in 1915, and during the same time fertilizer shipments show an increase of 4,453 tons, or from 5,167 to 9,620. On all lands which have been limed judiciously, excellent sets of clover will be found growing luxuriantly.

Attention has also been given to cowpeas, soy beans, rye, crimson clover, and rape, especially for grazing or hay. A conservative estimate places the acreage in all these crops at six times that formerly sown.

As mentioned before, the growing of live stock is the principal industry of the county. Cattle easily lead in number, and work with them has been conducted along both dairy and beef lines. After a careful survey of the situation it was decided, since the growing of beef cattle was well under way in the outlying districts away from the railroad, to encourage its development there and assist in increasing dairying where shipping facilities made that industry the most profitable.

In dairying, farmers living near the railroads have been advised to ship milk, while especial attention has been paid to encouraging the production and shipment of cream by those farther away. For this purpose 12 cream routes have been established, running 10 to 15 miles into the country, from the principal shipping points. The census report for 1910 shows that 226,402 gallons of milk and 4,133 gallons of cream were sold in the county. Railroad records for 1915 give total shipments of at least 408,333 gallons of milk and 25,093 gallons of cream, or an increase of 181,931 and 20,960 gallons, respectively. Farmers have been encouraged to keep dairy records, and in this way find the profitable cows in their herds. In 1915, 618 such records were kept. The county agent carries a milk tester with him on his rounds, and shows farmers how to use it.

In the campaign for better beef cattle, each year the agent has assisted a number of farmers in the selection of cattle for feeding, and outlined methods to be followed in the development and care of beef herds. The following report of results in 1914 will give an idea of a year's work in this line: 10 herds were started, 350 steers bought, 150 fattened, and over 1,000 head were cared for directly under the agent's supervision, besides a great many cattle for whose careful breeding and care the agent was indirectly responsible. In all, fully 60 farmers carried on some form of demonstration on this particular project.

The value of better dairy and beef sires is continually held before the farmers, until to-day there are 103 pure-blood bulls, or an increase of over 100 per cent in 5 years. Several cattle breeders' associations and sires' clubs have been formed.

Along with the growing of more corn, an interest in silo building has been created as an important adjunct to both the dairy and beef business. To-day there are 225 silos in the county, while only 15 or 20 were in use when the work began.

Demonstrations were also conducted annually in the growing of more and better hogs. Each year a campaign of this character has been conducted, with special emphasis laid on the value of grazing crops for hog production, instead of feeding corn alone. There is a steadily growing interest in this industry in the county, due to these examples. The number of hogs has increased in practically the same proportion as the number of cattle.

Some work has been done with sheep, resulting in a steady increase in their number. For instance, in 1914 10 flocks were started, due to demonstration influence.

The growing of horses and mules and the introduction of pure-blood stallions and jacks has received attention.

The following records of live-stock shipments show the increase that has been made in its production: In 1912, 248 cars; in 1913, 265 cars; in 1914, 313 cars; and in 1915, at least 424 cars—an increase in 4 years of 176 cars. Live-stock men estimate each car to average $2,000 in value. The increase in value of live stock and its products alone, shipped out of the county, has added nearly $400,000 to its revenues.

More of the county's wheat is sold than of any other crop; therefore demonstrations with it were included in the program of work. No effort has been made to introduce new varieties, but to improve on the quality and yield of those already at hand; also to delay the time of planting because of the Hessian fly. All of these things have been accomplished to a large degree. In the fall of 1913 demonstrations were conducted in many communities in the county. In these demonstrations 500 acres of wheat were sown under the direct supervision of the agent, making an average yield of 25½ bushels per acre, or over twice the average per county that year. In 1915 28 demonstrations harvested an average of 23.4 bushels per acre on 601 acres, some of which was very poor land. Several made over 40 bushels to the acre, the highest yield being 50 bushels. The average for the entire county was 12 bushels. The farmers themselves say that from 50 to 90 per cent of their number are using better seed wheat. In a two-days' trip over the county, covering nearly 200 miles, almost every man met was sowing wheat according to the agent's advice. Millers say that the quality of the wheat is better than formerly, and freer from weed seed.

The results of the work for better homes, more enjoyable country life, and for a more contented and happy people are difficult to put into actual words and figures, but a large amount of work has been accomplished. Some of these lines of work touch the home quite closely, such as the work with poultry, care of home orchards, planting, care, and management of home gardens, saving of surplus food products of the farm for home use, and the better care and keeping of milk, making of home butter, and the saving of meats. Considerable work was also done along the line of installing water and lighting systems in rural homes, the improvement of lawns, the rearrangement of home and farm buildings, and the planning of those about to be erected. With some one of these various lines of work at least a thousand homes were reached.

The poultry industry is encouraged in many ways. Eggs are gathered and marketed in connection with the cream routes. Poultry houses are planned and methods outlined for the care and production of poultry. In 1914 instructions were given on over 50 farms. To-day the poultry and eggs are said to be worth more than all the grain grown in the county.

Work with orchards was begun in 1913, attention being given to the setting out and improvement of the home orchard, rather than to the commercial one. In 1914, 50 men with 3,750 trees, and in 1915, 67 men with 6,000 trees received direct attention. Lists of suitable varieties of fruit and directions for setting out trees, also for pruning and spraying, have been given to many others. The first result accomplished was a reduction of one-half in the price of trees. Many farmers have said that before they started to prune and spray they could not save enough fruit for their own consumption, but now they have enough for home use and some to sell.

The influence of the girls' canning club and home demonstration work has added greatly to the campaign for better living at home. A woman agent was appointed in this work in 1914. Since then nearly 150 girls and many mothers have enrolled. New methods of saving farm and garden products and many labor-saving devices and arrangements in the home have been introduced. Several girls have already been enabled to attend high school and the way has been opened for others to get a better education.

Attention has been given to the problem of organization. In addition to local live-stock associations and sires' clubs already mentioned, community organizations have been given attention. In three communities in the county there are farmers' unions, the principal work of which was the cooperative purchase of supplies. These associations are of assistance to the county agent in his work, and are working with him on many of the problems in which he is engaged. Besides these, five other communities have organized local farmers' clubs or associations and are doing some work in cooperative purchasing of supplies, and generally studying local community problems. Six or seven communities in addition to those already mentioned have some sort of an organization. At these points or centers meetings are held more or less regularly, at which subjects pertaining to agriculture and the general welfare of rural people are discussed. The county agent, as a rule, participates in these meetings whenever it is possible to do so.

A good-roads association was formed in 1913, for the purpose of creating a sentiment for better roads. That this has been done is shown by the fact that to-day there are 69 miles of macadam road and 200 miles of improved dirt roads. All this progress has been made in the past two years.

During the season of 1915 instructions had been given for the entire work on 15 farms, aggregating 3,000 acres. These had been so located and used as to furnish community examples for object lessons. Fifty other farms have received some services of similar sort, but not direct supervision. Many more have been so supervised in previous years. Fields have been laid off, proper rotations established, the general plan to be followed on the entire farm outlined, and the county agent is consulted regarding every operation thereon. Rotations covering 10,000 acres have been started on over 50 farms other than those just mentioned.

The general increase in the prosperity of the county since demonstration work began, or during the past 5 years, is reflected in many ways.

Statements made by implement men indicate that to-day the trade in agricultural machinery has more than doubled itself. The growth in the live-stock industry has increased the sale of fencing alone three or four times over that in 1911. In connection with this industry the saving of manure has been emphasized, resulting in 600 farmers using manure spreaders.

The output of factories for the manufacture of tile for drainage is more than three times as great.

Teachers are better paid. Seven high schools have been erected, and the county schools have had their terms lengthened one or two months. A prominent teacher says: "The most hopeful sign is that in poorer sections they are looking for more productive seed and are following better farm practice. Improved agriculture is in the very atmosphere."

According to a well-informed banker, three-fourths of the farmers are in better condition. A summary of estimates made by representative men from various sections of the county places the returns from farms and the general condition of farmers at 35 per cent better than 5 years ago.

As most of the bank depositors are farmers, the increase in deposits of over $265,000 from July, 1911, to July, 1915, furnishes a reliable barometer of their business. A better showing would have been made on the latter date, except for the fact that wheat was then being held generally for better prices.

According to the records in the office of the county clerk, the personal property of the county increased from $1,532,684 in 1911 to $3,307,894 in 1914, or a gain of $1,775,210.

After 5 years of demonstration work in the county, the judgment of the county commissioners is that there is nothing for which appropriations are made that gives better returns than money spent in this way. Greater results have been obtained each year as the farmers become better educated in the work, and they look for this improvement to continue.

In this county the work has grown constantly and constructively, but there has been no outstanding or enthusiastic public demonstration of this arousing of the county to new life. As mentioned before, it was a prosperous county to begin with, and the type of agriculture was good; however, the entire rural life and the business interests of the county have been beneficially touched by this educational activity and the services rendered through the county agent.

Compared with the example given in Christian County, it is possible that Culpeper does not stand out as such a great example of how a whole county demonstrated, but the effect of the education and of the service rendered is to be found there in even a greater degree. No better evidence of the value of this educational service could possibly be given than the fact that the work has continued steadily, without interruption, is held in highest esteem, and the man in charge of it has received recognition, not only from the college of his State and the department, but also from the local people.

Two examples have been given; similar work is in progress in hundreds of counties in both the Southern and the Northern States.

KARAKUL SHEEP.

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THE production of Persian lamb fur in the United States appears to be feasible and to present commercial possibilities. The fur now comes to this country through Europe from Central Asia, where it is produced by the sheep known as Karakul.[1] Since 1909, 54 of these sheep have been brought to the United States. The importations consisted chiefly of rams, which have been mated with ewes of other breeds to determine what class of the readily available ewes are most valuable for mating with Karakul rams to produce lambs having good skins. Flocks owned in Texas, Kansas, and New York now comprise over 1,000 head of sheep having one-half or three-quarters Karakul blood. Besides these grades there are 60 rams and ewes that are either imported or descended from imported stock.

Much is yet to be learned about the breeding and management of Karakul sheep in the United States, but their successful rearing seems likely to be accomplished, especially in areas of higher elevation and drier climate.

The fur commonly known as Persian lamb is taken from the young Karakul lambs. The common practice is to kill the lambs when but a few days old, as the character of the curls deteriorates with greater age. The skins of prematurely born lambs have value as furs, but ewes are not sacrificed to secure them.

The Persian lamb fur used in the United States is produced in Central Asia, chiefly in the Khanate or principality of Bokhara, situated between Turkestan on the north and Afghanistan on the south, though a few Karakul sheep are kept in the territory adjoining Bokhara. The term "Persian" seems to have become attached to this class of fur because of the fact that at one time it was sent to Europe through points in Persia. There are some Karakul sheep in Persia, though the stock common to that country and known in America as Persians are not valuable as fur producers.

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[1] This name, sometimes written Caracul, is pronounced Kar-a-kool, with the major accent on the last syllable.

In 1909, 15 head of Karakul sheep were imported to the United States from Bokhara by Dr. C. C. Young, of Texas. The results obtained with these sheep and their descendants and with others imported in 1913 and 1914 have made it appear that the production of Persian lamb fur can be made a profitable commercial enterprise in the United States. Because of the distance to Bokhara and other matters peculiar to that country which present difficulties to importers, it is improbable that the number of Karakul sheep brought to the United States will be sufficient to bring their prices within the reach of many farmers or sheep raisers.

The future of the industry in this country depends very largely upon the results obtained by mating Karakul rams with ewes of other breeds. Recognizing this fact, in 1911 the Animal Husbandry Division began experiments planned to show the value of lambs from Karakul sires and dams of a number of well-known breeds. This project also included the rearing of stock from successive matings of Karakul sires with ewes having various proportions of Karakul blood. Serious delays were occasioned by the fact that the division owned none of the Karakul sires used. In 1911 and 1912 two crops of half-bred Karakul lambs were born and two sets of three-quarters-bred Karakuls in 1913 and 1914. All but four head of the sheep retained in the experiment were lost through the burning of the barn at the experimental farm in March, 1915. Though incompleted, the project has yielded useful information which is herein reported, together with a discussion and summary of Karakul breeding in the United States and features of the industry in its native home.

COMMERCIAL FURS PRODUCED FROM SHEEP.

CLASSES OF FURS.

The furs which are taken from young lambs are known as Persian lamb, Astrakhan, Broadtail, and Krimmer. In recent seasons ladies' coats made from skins similar to Astrakhans have been sold as "Karakuls." Persian, Astrakhan, and Broadtail skins are all black in color, but vary in the character of curl. Persians have the most pronounced, most uniform, and tightest curls and the greatest value. (See Pls. XXXIX, XL, XLI, XLIV, XLV, and XLVI.) Astrakhans have longer hair, the curl is much more open, and usually has less luster or gloss than the Persian (Pl. XLVII). The "Moirée" Astrakhan is a very soft, light skin, having straight hair, but with a very pronounced satiny luster (Pl. XLII). Broadtail skins are taken from lambs prematurely born. Valuable skins of this class are soft and pliable, as well as being very light in weight. Their hair is shorter than on Persian skins, and instead of being tightly curled exhibits a very attractive wavy pattern (Pl. XLIII). Krimmer is a gray fur produced mainly in the Crimean peninsula, hence its name.

In each of these classes of lambskins there are varying grades. It can not be said that all Persian skins are more valuable than all Astrakhans, though they average considerably more and include the most valuable lots. With the exception of Krimmer the above skins are produced mainly by Karakul sheep reared in Bokhara.

VALUES OF PERSIAN LAMBSKINS.

The demand for Persian lamb fur has broadened greatly in recent years. Between 1895 and 1913 prices have increased about 180 per cent. In occasional seasons (including that of 1914–15) values have fallen, not through changes in fashion or popularity of this fur, but as a result of less liberal expenditure on the part of the class of people who buy articles of this class and value. The serviceability and attractiveness of Persian lamb fur, together with the diminishing supplies of the natural furs, render a return of lower values doubtful and a further advance not unlikely.

Some idea of values of various grades of skins can be obtained from the prices of those shown in the illustrations. The values of April, 1915, were assigned by a leading New York firm of fur dealers. As stated, fur values at that time were unusually low, and the values then quoted are useful chiefly to show the differences in the various skins.

Plate XXXIX. Imported skin, valued $10, April, 1915.

XL. Skin from lamb having two crosses of Karakul blood, grand dam being Barbados. Valued $10, 1913, and $6, April, 1915.

XLI. Skin from lamb having two crosses of Karakul blood, grand dam being Lincoln. Valued $7, April, 1915.

XLII. Imported skin, valued $5, April, 1915.

XLIII. Skin from lamb having two crosses of Karakul blood, grand dam being Barbados. Valued $5, April, 1915.

XLIV. Five-day-old skin from lamb having two crosses of Karakul blood, grand dam being Cotswold. Valued $4.50, April, 1915.

XLV. Two-day-old skin from lamb having two crosses of Karakul blood, grand dam being Barbados. Valued October, 1913, $7.50; April, 1915, $4.

XLVI. Skin from lamb raised in Texas, having two crosses of Karakul blood, grand dam being Lincoln. Valued $4, April, 1915.

XLVII. Skin from lamb sired by Karakul, dam being Cheviot. Valued $3, April, 1915.

XLVIII. Two-day-old skin from lamb sired by Karakul, dam being Merino. Of no value from a furrier's point of view.

THE KARAKUL SHEEP.

NATIVE HOME AND DEVELOPMENT.

The Karakul sheep takes its name from Kara Kul (black lake), a village in the eastern part of Bokhara, a Province in Central Asia. This Province, which is a protectorate of the Russian Empire, comprises about 85,000 square miles.

A large part of the area has an elevation of about 8,000 feet. About one-tenth of the country is used for crop raising by the aid of irrigation. In all parts of Bokhara the summers are very hot and dry. In the lowlands winter temperatures of 20° F. are common, while the highlands, where sheep are more numerous, have still lower temperatures and a longer winter season. The best feed occurs from the middle of March until the middle of May, after which vegetation rapidly dries up. The areas on which the sheep run in winter are frequently covered with snow and in some years sheep losses are heavy. In more recent years, and since the increase in values of lambskins and sheep, some feed is stored for winter use. In moving from place to place for feed and water the flocks travel considerable distances, rendering it impracticable to furnish shelter or large supplies of feed.

The number of sheep in this territory is estimated at from 3,000,000 to 4,000,000, and the annual exports of lambskins are known to average about 1,500,000. The skins are collected by dealers and traders, most of them to be resold at the annual summer fair at Nijni Novgorod, in Russia, 272 miles by rail east from Moscow. About 166 skins are packed into a bale and ordinarily not assorted for export to various countries until after becoming the property of the dealers, largely Germans from Leipzig, who purchase them at Nijni Novgorod. In Leipzig the skins are sorted into uniform lots for export to various parts and a few are also dyed, though as a rule the dyeing is not done until the skins reach the firm by which they are to be made up for wearing apparel.

The increasing popularity of Persian-lamb fur in various countries caused a steady advance in prices of raw skins. In New York imported dyed skins of the first class sell in small lots at from $12 to $20 each, though there are many skins imported which command as low as $3. There is no duty upon undressed skins, while those not advanced further than dyeing pay 30 per cent duty. Skins of prematurely born lambs vary in value from 25 cents to $9. The average wholesale value of all skins sold at Nijni Novgorod in 1913 was $6.25.

It appears that the foundation of the present fur-bearing sheep was the early native Arabi. The blood of the Arabi has been disseminated and in combination with that of the black Danadar produced the sheep kept in the vicinity of the village from which the Karakul derived its name. With the rapid rise in values beginning in 1895 there was incentive to increase the size of flocks by purchase of ewes available from surrounding territory but low in fur quality. The offspring of such ewes, by rams from the older flocks, had marketable skins. With no reservations of select animals for raising rams, and with the general custom of killing the ram lambs while retaining the ewes, the value of the sires seriously declined. It has been stated that the fur quality of the Bokharan flocks was in danger of being lost. Steady high values for skins prompted an effort toward preservation of the better stock and in some degree arrested deterioration. It would seem, however, that with a system of matings whereby the sire and dam of each lamb are known, and careful study made and records kept of each lamb so bred, the qualities may be fixed and enhanced, as has been done with many other characters of sheep.

The Karakul sheep of Bokhara that yield the Persian lamb fur can be said to represent a type, although those Europeans who have studied them state that there is considerable variation within flocks as well as within lots of skins sent to market. The use of single rams and recording of parentage of lambs raised is practiced very little if at all. There are no books of record. It may, therefore, not be technically correct to speak of these sheep as a breed in the sense of the best use of the word. However, in the appearance of the lambs' coats these sheep have a character of value not found in other sheep and which they transmit to their offspring. In the lack of a term to fit accurately the Karakuls it will not be amiss to refer to them as a breed, using the word in a liberal sense.

APPEARANCE AND CHARACTERISTICS.

The Karakul is a sheep of medium size, with black face and legs, and a long, coarse fleece of some shade of gray. The rams are horned and the ewes polled, though occasionally polled rams and horned ewes occur. The body of the Karakul has not a close resemblance to that of any of the breeds well known in America. It has the narrow back and flat sides common to sheep not bred for meat production. A depression back of the shoulders and a high loin are usually present. The rump is of itself quite drooping, and a very distinctive character is the shape and size of the tail. This is not the long tail of the European breeds, neither can the Karakul be said to belong to the fat-rumped class common in Asiatic countries. It is described as "broad-tailed." Being quite short and very broad next to the body, fat accumulates in this part and forms a triangular development that may weigh 5 or 6 pounds, extending toward the hocks. The lower part of the tail is frequently sharply curved. This broad-tailed feature is only slightly developed in the lambs at birth, becoming pronounced in mature animals. Other peculiar features are shown in the head. The face is narrow and decidedly Roman-nosed. The ears are small, pendulous, and set somewhat low. The fleece is from 6 to 10 inches long, decidedly coarse, and at the outer ends lying in separate small locks. (See Pls. XLIX and L.)

In some specimens of the breed there is a noticeable amount of finer and softer wool near the skin. This undercoat is not desired in breeding animals, as it is stated that the lambs having the best curl and luster come from parents having the least fine wool. Karakul fleeces are commonly sold as carpet wool. A pronounced glossiness of the hair of the face and legs and evidence of curls on these parts are regarded as indications of ability to produce lambs with skins of good luster and curled all over.

The Karakul, as a result of its environment, is adapted to areas of extreme temperatures and limited rainfall. Lambs dropped in Maryland in August have shown marked thrift and a rapid growth which is less marked after three months. This is not surpsising when it is considered that the average mature weight is not much above 100 pounds for ewes. Reports from Texas parties who have raised imported, native-born, and grade Karakuls state that they were better able to resist cold and storms than sheep of other breeds. The conformation of the Karakul does not commend him as a mutton producer. While the hardiness of the mature stock and the size of the lambs are desirable qualities, the use of Karakul blood to impress them upon a flock bred for mutton would sacrifice a good deal of the desired conformation and would not be advisable under conditions affording reasonable feed and care. In flocks of mutton type which must necessarily be kept upon range subject to extreme conditions, careful use of Karakul blood might give results of value apart from consideration of the fur value.

KARAKULS IN OTHER COUNTRIES.

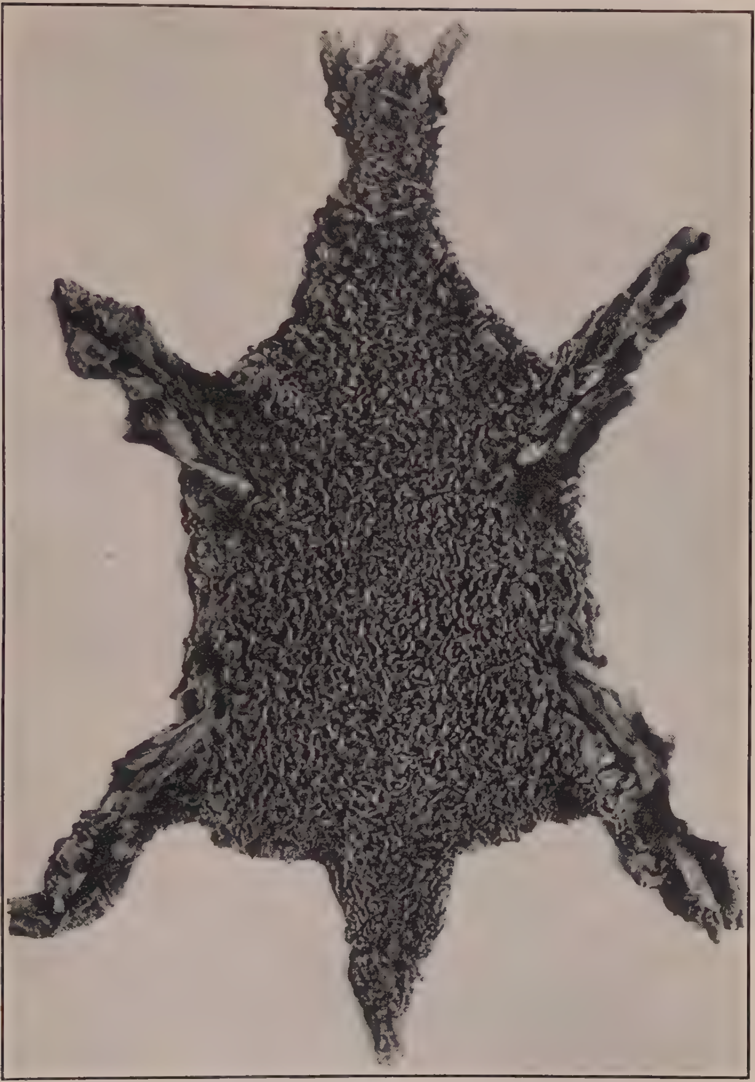
There would seem to be an opportunity for careful and experienced breeders in other countries having conditions suitable to the Karakul sheep to improve the breed greatly and to establish the Persian lamb fur-producing industry in their localities. The possibilities of large profits from breeding fur-bearing sheep has, in fact, resulted in active efforts to establish the industry in several other countries.

Despite the difficulties of securing possession of good sheep and of removing them from Bokhara, considerable numbers have reached distant parts of the world. From 1907 to 1910 annual exportations averaged 1,577 head to Asiatic Russia, 418 to European Russia, and 221 to western countries; some of those enumerated as going to Russia reached other countries. Flocks of Karakuls have been established in European Russia, Roumania, Germany, Austria, Hungary, Argentina, German West Africa, British South Africa, Scotland, Canada, and the United States.

Though no detailed records of results are available, it is claimed that good skins have been produced by Karakul sheep and their descendants of unmixed breeding in all of these countries. In South Africa attention appears to have been centered less upon fur production than upon the value of Karakul blood in better adapting the native sheep for "the drought-ridden districts of the northwest Cape." In others of the countries named the sheep have been largely used in breeding experiments planned to show what types of sheep already at hand can be mated with Karakuls with the greatest promise of producing valuable skins. It is as yet impossible to forecast the extent of future supplies of skins that may be produced outside of Asiatic Russia.

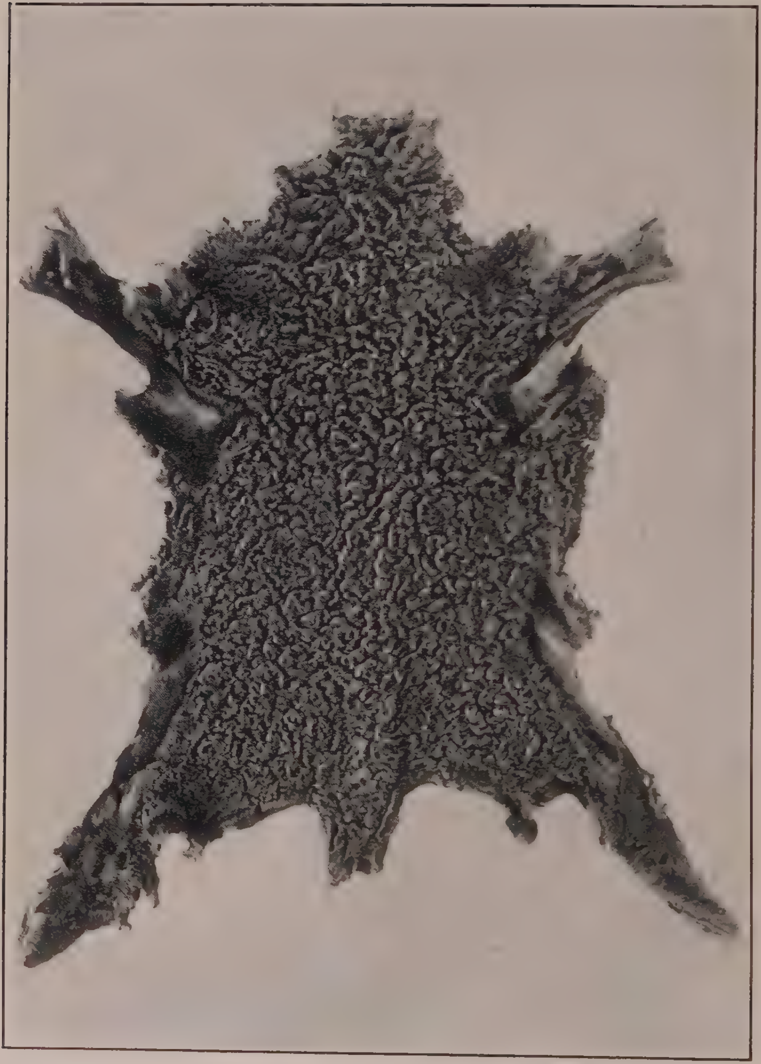
KARAKULS IN THE UNITED STATES.

Only three lots of Karakul sheep have reached this country. These were all imported by Dr. C. C. Young and comprise a total of 31 rams and 23 ewes. A number of the rams have never been satisfactorily tested as to their ability to sire lambs with valuable skins, and, as would be expected even in a breed of fixed type, some individuals have proved to be much stronger breeders than others. A number of the rams together with some of their descendants have been sold to persons in Prince Edward Island, Canada, and for a number of others it is impossible to secure definite information as to the number of their progeny. So far as can be ascertained, the imported animals and the descendants now in this country are in the hands of 8 or 9 persons in the States of Texas, Kansas, and New York, who reported in May, 1914, a total ownership of 33 rams and about 30 ewes. The rams have been largely used upon long-wool ewes, and there are over 1,000 head of half and three-quarters Karakul



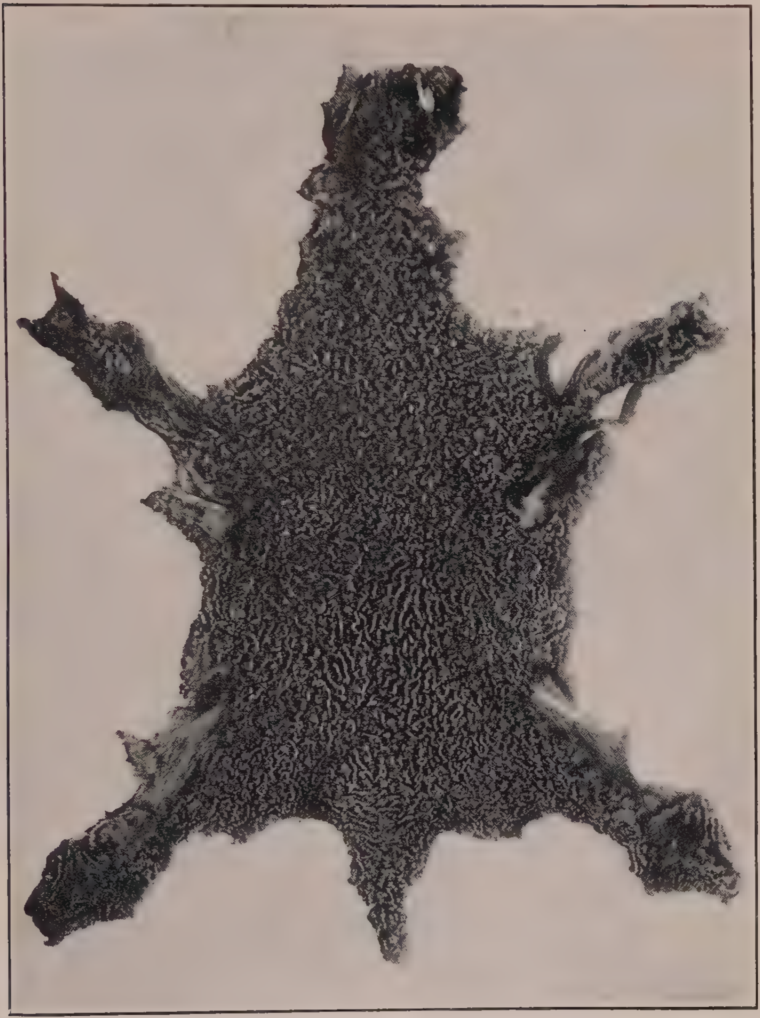
A SKIN CLASSED AS PERSIAN LAMB (IMPORTED).

The tight, even curl and fine luster are main factors determining its value.



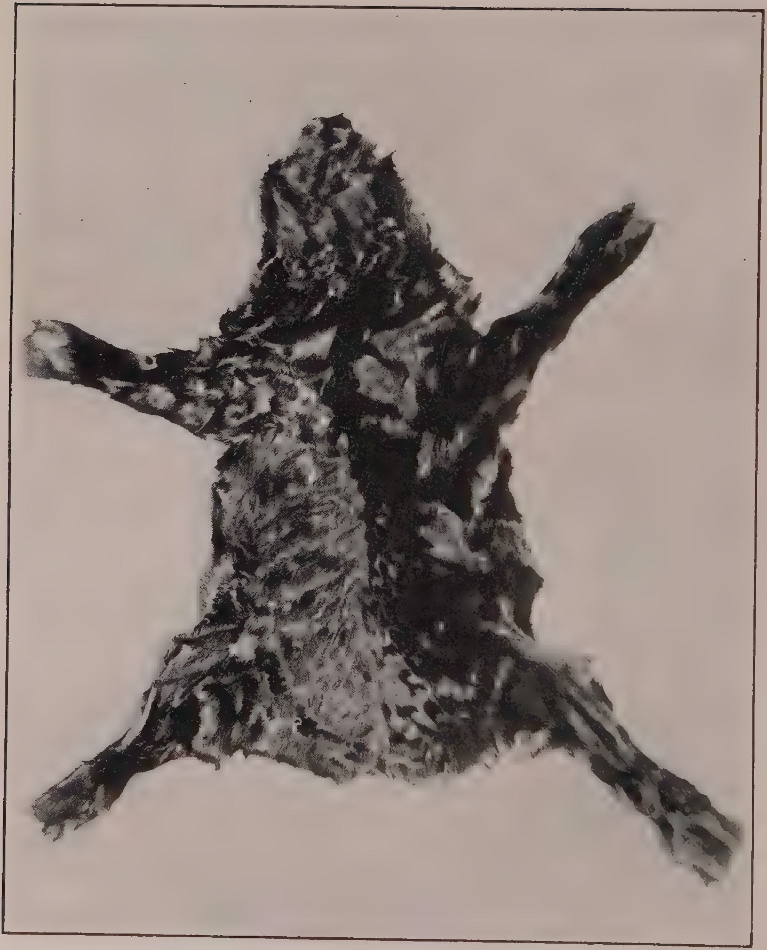
SKIN CLASSED AS PERSIAN LAMB.

Curl is tight and lustrous, but larger than that shown in Plates XXXIX and XLI.



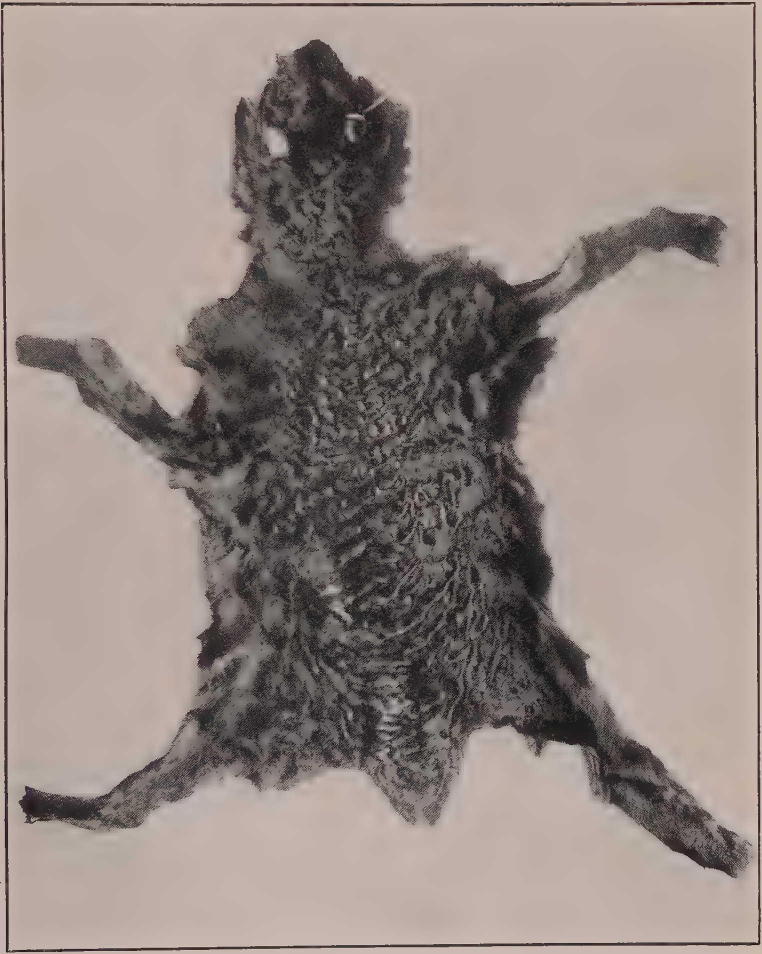
SKIN CLASSED AS PERSIAN LAMB.

The lack of even curl over neck depreciates its value.



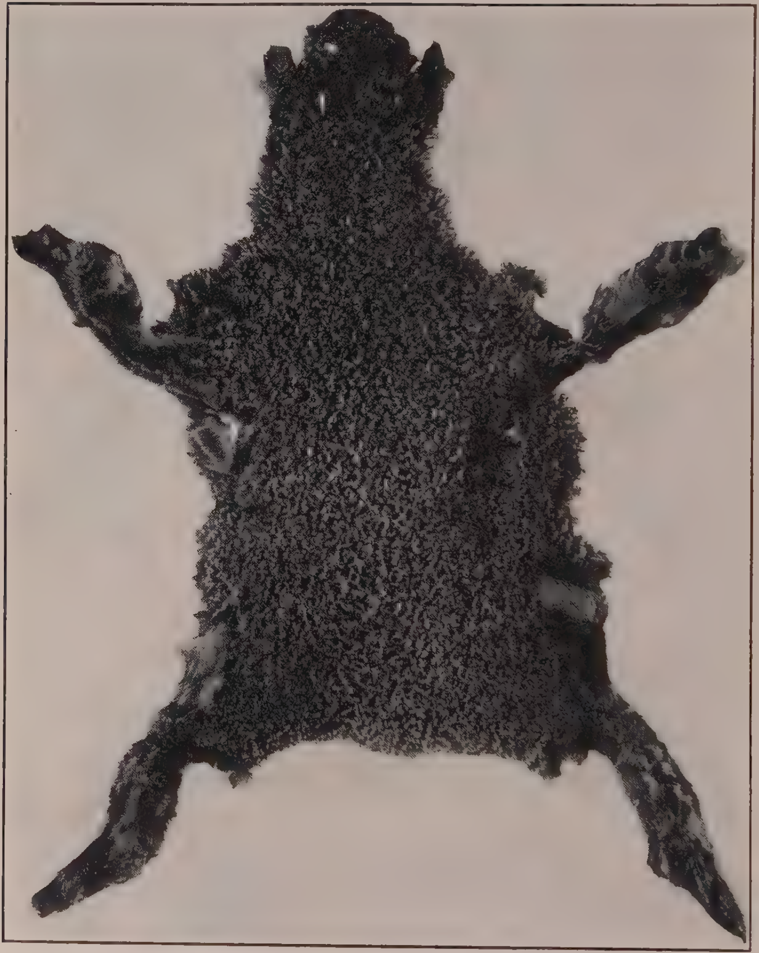
SKIN CLASSED AS "MOIRÉE" ASTRAKHAN (IMPORTED).

Note unusual luster and soft velvety appearance peculiar to its type; also absence of curl.



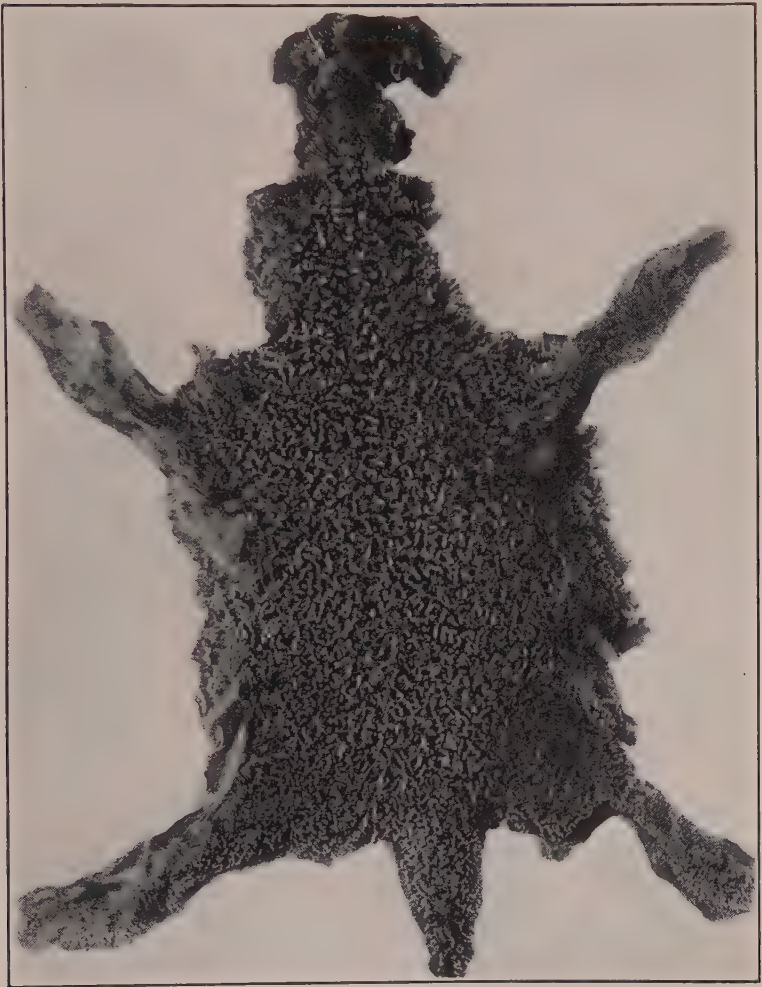
SKIN CLASSED AS LOW-GRADE BROADTAIL.

In place of the tight curl desired in the Persian lambskin, a wavy, lustrous, and velvety pattern appears. This pattern should extend uniformly over shoulders and belly and not be limited to back, as is the case of this skin.



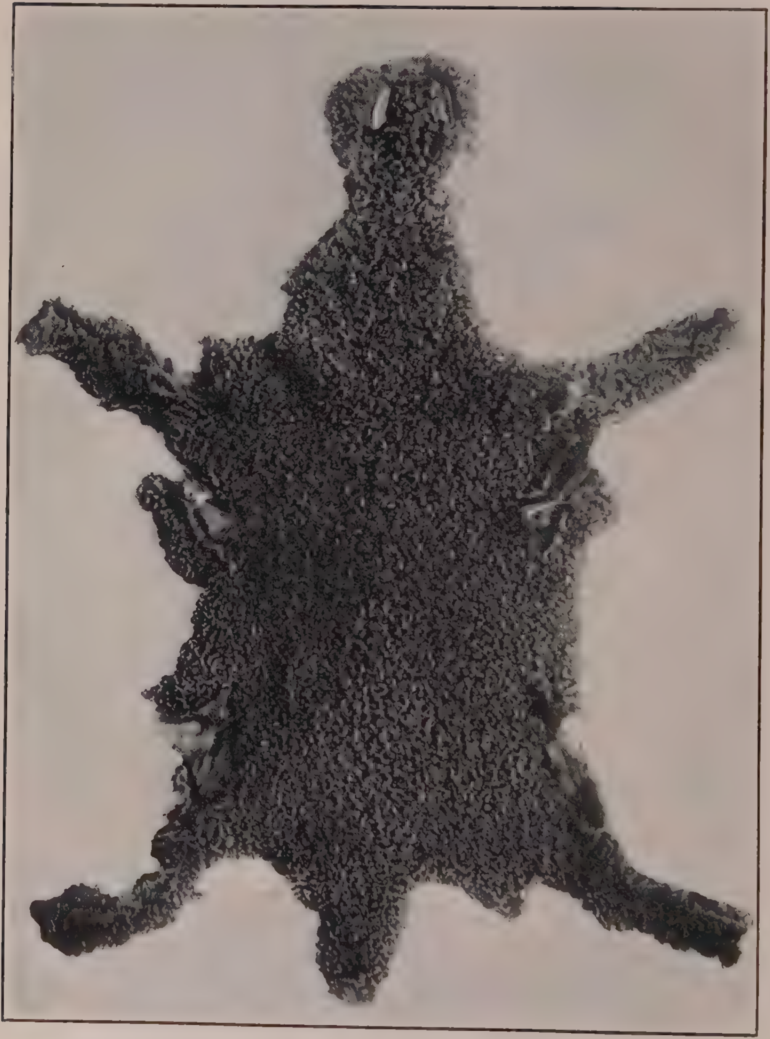
SKIN CLASSED AS LOW-GRADE PERSIAN LAMB.

Although it is lacking in luster and tightness of curl the uniformity of curl over entire body is extremely desirable.



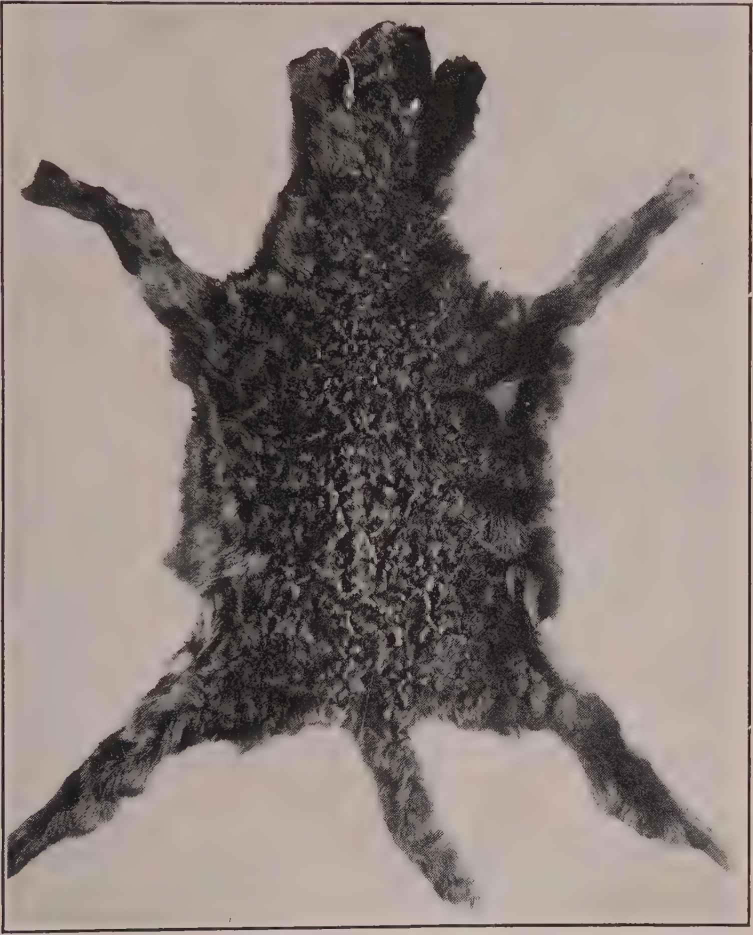
SKIN CLASSED AS LOW-GRADE PERSIAN LAMB.

The tightness of curl and brightness of luster are noticeably absent.



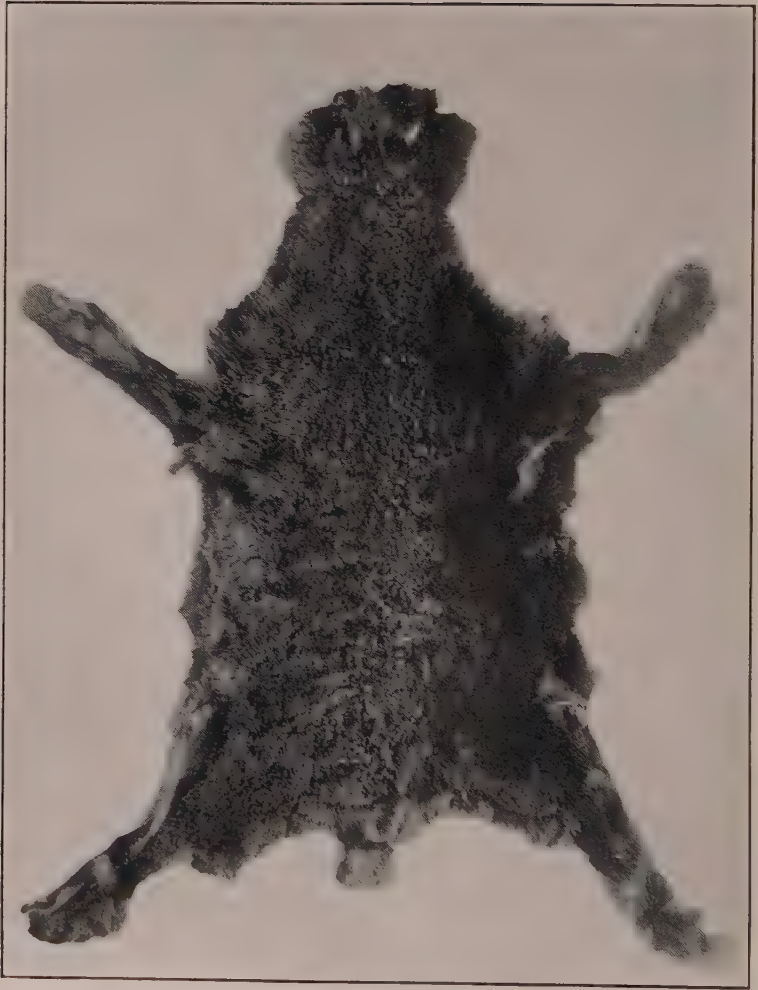
SKIN CLASSED AS LOW-GRADE PERSIAN LAMB.

The lack of tight curl and the poor luster are objectionable features.



SKIN CLASSED AS ASTRAKHAN.

More curl over neck, shoulders, and belly of this skin would increase its value.



THIS SKIN HAS NO COMMERCIAL VALUE IN THE FUR MARKET.

It has neither curl nor luster and shows a dead, doggy appearance.

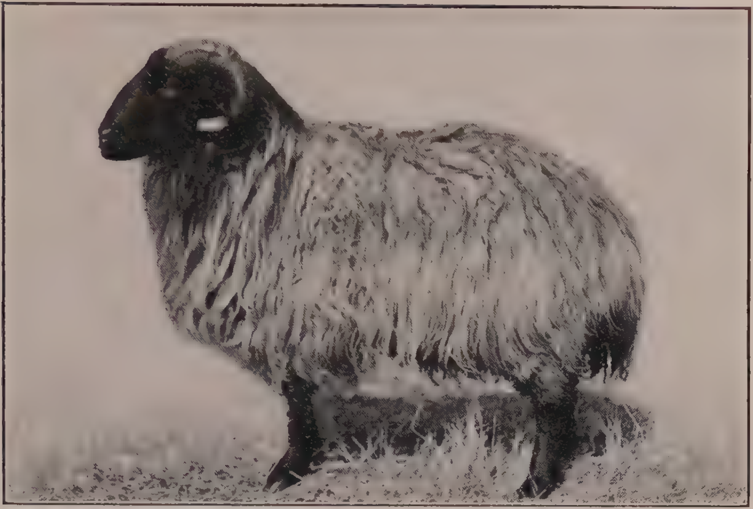


FIG. 1.—IMPORTED KARAKUL RAM USED BY BUREAU OF ANIMAL INDUSTRY AT ITS EXPERIMENTAL FARM, BELTSVILLE, MD., IN 1913.

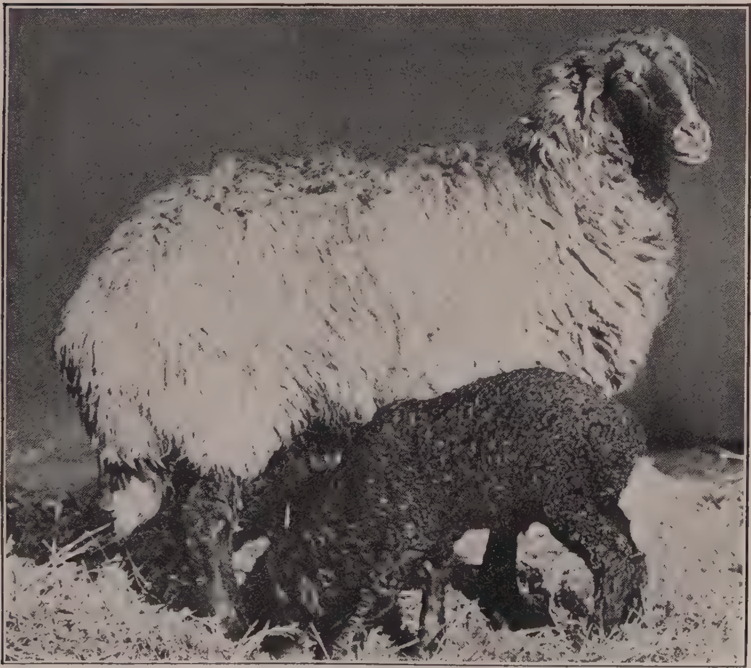


FIG. 2.—VERY YOUNG KARAKUL LAMB, SHOWING DESIRED TIGHT, UNIFORM, AND LUSTROUS CURL, EVENLY DISTRIBUTED OVER ENTIRE BODY.

The ewe is an imported Karakul.

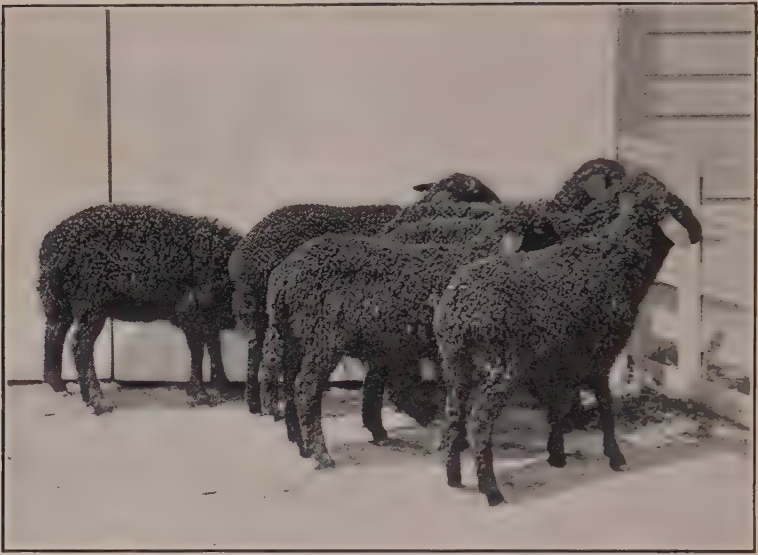


FIG. 1.—LAMBS 6 WEEKS OF AGE.

The loose and open curl, not characteristic of Karakul lambs at birth, is clearly noticeable.

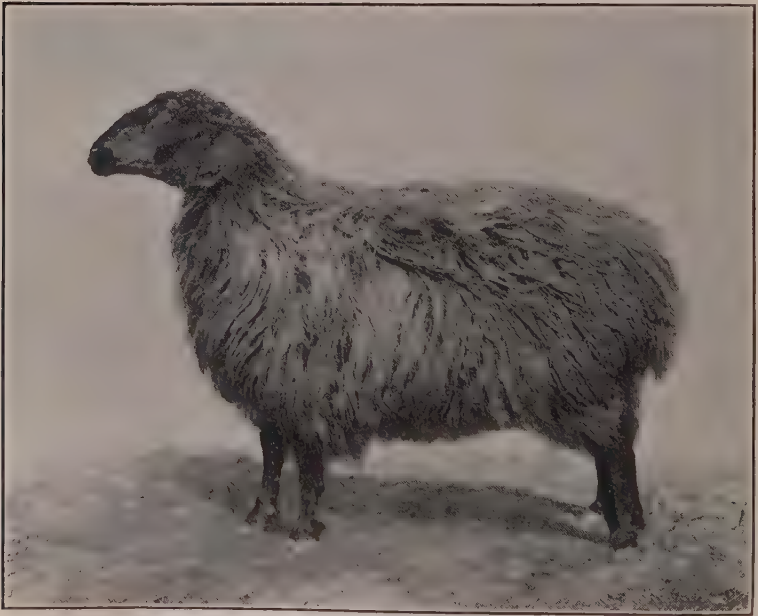


FIG. 2.—THE COARSE AND HAIRLIKE FLEECE SHOWN ON THIS EWE IS FREE FROM UNDERWOOL AND MUCH SOUGHT AFTER BY KARAKUL BREEDERS.

ewes and rams in this country. With further crossing these ewes should prove valuable as producers of fur-bearing lambs, and at some later time, of breeding rams. The present value of the grade Karakul rams from the standpoint of fur production can safely be ignored.

Owing to the wide demand for the small number of Karakul rams available, very high prices are asked. In the cases of rams found to be strongly prepotent in the transmission of fur qualities the high prices can be easily returned in the value of the offspring. The probability of such prepotency in imported males or descendants of imported stock is not sufficient to warrant very high prices for rams of untested breeding qualities.

Under common farm conditions Karakuls and grade Karakuls have proved healthy and vigorous, though there are indications that moist sections and low altitudes may, directly or indirectly, cause losses in both lambs and mature sheep. Although climate would seem to have no direct effect upon the character of the skin of a newly born lamb, persons proposing to breed Karakuls should exercise caution in the selection of a location.

BREEDING METHODS WITH KARAKULS.

USE OF KARAKUL RAMS WITH EWES OF COMMON BREEDS.

The number of Karakul rams imported into the United States has been considerably in excess of the number of ewes. Much reliance has been placed upon the prospect of securing valuable skins from lambs sired by Karakul rams and out of ewes of other breeds. Ewes of the longer and coarser-wooled breeds have appeared most likely to be of value in such crossing. While some skins of value have been secured from first-cross lambs, the advantage of as much as possible of Karakul blood in the dam is apparent. Black-Faced Highland ewes are reported as having furnished a useful cross, though no ewes of this breed were used in our experiment. Cotswold and Lincoln ewes have been more largely used.

Of eight skins taken from lambs produced by Cotswold ewes to the service of Karakul rams, three were valued at $1 in the raw state, although all were black and had considerable curl. The same statement can be made of practically all first-cross lambs from Karakul sires. A skin may be black and have curls and yet have little value because of the lack of luster and the poor style of curl.

Six skins were procured from lambs produced by Cheviot ewes to the service of Karakul sires. One of these was valued in the raw state at $3 and another at $1. (See Pl. XLVII.)

Of five skins from lambs of Merino ewes and Karakul sires, none had sufficient fur value to repay the charge of 50 cents per skin for dyeing. These skins were particularly poor in luster and the character of curl was still poorer than in the other crosses. (See Pl. XLVIII.)

The sire of most of the lambs referred to above was a particularly good individual, though he had never been used sufficiently upon Karakul ewes to afford a measure of his ability to sire lambs with valuable skins. The poor results obtained by using Cheviot and Merino ewes would make it appear that none of the fine or medium wooled breeds are likely to have much value in the production of fur-bearing lambs. Though still inferior, the distribution and style of curl upon the skins of lambs from Cotswold ewes was superior to that in the other two crosses as well as in the Barbados cross discussed later.

From the service of the best of the two rams used in the first crosses, 59 lambs were obtained from Barbados ewes. The Barbados has a short, rather stiff, and hairy coat, and it was thought might afford a satisfactory means of utilizing the Karakul rams. From these 59 cross-bred Karakul-Barbados lambs, 33 ewes were raised. None of the skins from the remainder of the lambs had any fur value. Some skins devoid of curl had a pronounced luster, but in none was the curl a close approach to what the trade demands even in the lower grades of skins.

HALF-BRED KARAKUL EWES AS PRODUCERS OF FUR LAMBS.

Even though the lambs of the first cross from Karakul sires should not themselves yield valuable fur, they may be expected to have extra value as breeders. In the spring of 1913, 15 half-bred Karakul-Barbados yearling ewes were bred to a second imported Karakul ram. These ewes produced 18 lambs in the following August, of which 7 ram lambs and 1 ewe lamb were killed and their skins, after dressing, ranged in value from 50 cents to $10 (basis of October, 1913, prices), averaging $4.70 each. In the spring of 1914 the same lot of Karakul-Barbados ewes produced 25 lambs sired by a third imported Karakul ram. There is, apparently, considerable variation in the prepotency of individual Karakul rams, as the second lot of lambs of three-quarters Karakul blood were much inferior to the first lot from the same ewes. Feed and condition of the ewe may be factors in controlling the character of the lamb's skin, but although the ewes were bred quite soon after their first lambing their condition or treatment could hardly be held to explain the difference in appearance of the lambs of the first and second crops. Nine rams and 1 ewe of the 1914 lot of three-quarters Karakul and one-quarter Barbados lambs were killed. Of these 10 skins, the 2 best ones were valued at $1 and $3. A group of the ewe lambs having three-quarters Karakul blood are shown in Plate L. A few of them had skins somewhat superior to those of the male lambs killed. These ewes were to have been mated in the spring of 1915, but were destroyed in the burning of the sheep barn on March 31.

In the spring of 1914 a half-blood Karakul-Cotswold ewe dropped a lamb of three-quarters Karakul blood, the skin of which was valued at $4. (Pl. XLIV.)

It is altogether reasonable to expect a flock of ewes well graded up by use of successive Karakul sires to prove satisfactory as producers of marketable skins.

A Texas breeder who has used Karakul rams upon Lincoln ewes, in 1914 had 225 half Karakul ewes which had been bred to Karakul rams. Twenty skins from lambs of half and three-quarters Karakul blood were valued by a New York firm in May, 1914, at an average of $4.25, 1 being then valued at $7 and 7 at $5 and over. In 1915, 23 skins were taken from three-quarters-bred rams that died at birth or could not be reared. This lot was appraised at an average of $3.25 each on the basis of the 1915 market. Five of the lot were each worth $5 or over, and 3 below $2. Photographs of some of these skins are reproduced in Plates XLI and XLVI.

BREEDING FROM HALF-BRED KARAKUL RAMS.

Since information has been distributed as to the apparent possibilities of producing Karakul lambs in the United States, considerable interest has been shown in the use of rams having only half Karakul blood. This interest has in some cases been stimulated by owners of such stock. The scarcity and high values of imported animals or of rams descended from imported rams and ewes is prohibitive to most persons. Because the half-blood ram has a fleece of dark color and with noticeable curl, or waviness when older, he appears to the novice as suitable for use in breeding.

Reports have also appeared stating that the offspring of such rams bred to long-wool ewes had fleeces that were black and curly. Such statements are technically correct but dangerously misleading. A lamb's covering may be black in color and also curly, and yet be of no value whatever to the furrier. It is the character of the curl and the luster with the blackness that gives fur value. This is brought out in the illustrations of this article.

In April, 1914, there were produced in our own experiments 4 lambs sired by a ram of one-half Karakul and one-half Barbados blood, from ewes of the same cross and having the same sire as the ram. The lambs were all of the same general appearance as the direct offspring of the Karakul ram and Barbados ewes and none had value for fur purposes. In the spring of 1914, a three-quarters Karakul and one-quarter Barbados ram was bred to 7 ewes, producing 10 lambs. This ram when young showed fur qualities above those of the ewe lamb of the same crop and the skin of which was valued in New York at $10 (Pl. XL). The ewes bred to him were of the first Karakul-Barbados cross. One of them had previously been bred to a Karakul ram and produced a skin valued at $7.50. Another had produced a lamb whose skin was of no value, while the other 5 had not produced lambs. None of the 10 lambs of this cross, which were theoretically of five-eighths Karakul blood, had skins of value. Not much was expected aside from further evidence as to the possible breeding value of rams having only 1 or 2 crosses of the blood of the breed having the qualities desired. A ram having one-half Karakul blood will add to a flock an infusion of the body features which this breed shows and will in a small measure and at low cost improve a flock that is to be later bred up for fur production. There is no prospect of securing marketable skins by breeding half-bred rams to ewes of any class.

TIME AND METHOD OF REMOVING SKINS.

It is very important that lambs should be killed at the right age in order to give the skins their maximum value. Skins of prematurely born lambs have a peculiar gloss and softness, which does not, however, have a value above that of a good skin born at the normal time. The current idea that Persian lamb fur is secured from lambs removed from ewes prior to the time of natural birth is erroneous.

Our observations show that the value of the skins may often be greatly lessened by allowing the lambs to reach too great an age. The extra weight of the skin from a lamb that has reached an age of 5 days will seriously lower the value. Occasionally a skin will improve in luster during the first few days after birth. Daily observations upon the condition of the skin were recorded for each lamb of the 1914 crop from birth until the skin began to deteriorate in fur value. Although none of these three-quarters Karakul lambs had skins of high value, the changes due to age may be considered as fairly representative of those occurring in lambs producing fur of good quality. In no case was it found that the character of the curl improved after birth. In most cases the curl retained its original closeness until the third day, and in about one-half of the skins it had begun to open on the fifth day, while at the ninth day it had opened considerably. The luster improved in most cases up to the fifth day, the change being most marked in skins having a poor luster at birth. It appears that while some skins may be improved in luster by being left until 5 days old, there is nothing gained in character of curl. In fact, after the third day there is a strong probability of a deterioration in the curl.

The method of removal and treatment of the lambskins should be as follows: Cut a straight line down the belly, and also cut down on the inside of the legs to meet the center line. Do not cut off any part of the skin; leave on the ears, nose, and tail to the tip. Be careful not to make unnecessary cuts. Stretch the skin evenly on a board, fur side down, and dry in a cool place. Do not salt the skin or double it up for shipment purposes. The principal object is to avoid cracking the skin. See that it is properly shaped when nailed down to the board and thoroughly dried before shipping. The skin should not be sun dried. In packing a number of skins the first one should be laid with the flesh side downward. The second should have the fur side downward. The next should be placed like the first, and so on. This prevents the flesh sides from lying in contact with the fur.

RECENT GRASSHOPPER OUTBREAKS AND LATEST METHODS OF CONTROLLING THEM.

(Pls. LI–LVI.)

By F. M. Webster,[1]

In Charge of Cereal and Forage Insect Investigations, Bureau of Entomology.

In this country there is ample evidence that grasshoppers attacked the grainfields of the Indians before the coming of the white man. It is certain that as early as the beginning of the eighteenth century these pests were numerous and voracious in the newly settled portions of the country, notably in New England, some parts of which were literally overrun with them. As the tide of immigration and settlement extended from the east westward the pioneer farmer on newly reclaimed lands has frequently suffered severe, and in many cases disastrous, losses of his crops on account of the inroads that these devastating hordes have made upon them. Thus those most frequently subjected to these invasions often have been financially the least able to withstand the resulting losses. Both in foreign countries and in America the discovery of effective methods of controlling these outbreaks has been an important agricultural problem.

The species of grasshoppers most commonly destructive in the United States are limited to 7 or 8 in number. (See Pl. LI, figs. 1 to 12.) These are the differential grasshopper, the two-striped grasshopper, the Carolina grasshopper, the lesser migratory grasshopper, the pellucid grasshopper, the nonmigratory red-legged grasshopper, the California devastating grasshopper, and the lubber grasshopper. (Pl. LII, fig. 1.) The destructive grasshoppers in Central America and the West Indies occur in destructive, ruinous numbers only in Florida and along the Mexican border, and as no investigations of these have yet been made, they are not included among those considered in this paper.

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[1] Shortly after preparing this paper for the Yearbook, and following a very brief illness, Prof. Webster died, January 3, 1916. He was one of the best known of the older group of economic entomologists and held a high place among those responsible for the present high standing of American economic entomology.—Editor.

At the present time in the United States there are three principal control methods that have been found of practical value: (1) The destruction of the eggs: (2) catching the insects in the field: (3) the use of poisoned baits.

The first method is effective where its use is practicable, but unfortunately local conditions do not always permit of this. Before laying her eggs the female makes a small hole or cell in the ground for their reception (fig. 7). For this purpose it is necessary that the soil be more or less moist and penetrable. In such places the greatest number of eggs are to be found, and from them the insects spread to and overrun adjacent fields. In the Merrimac and Connecticut Valleys, in New England, the required soil conditions are found in the meadows of the farmers located in the river bottoms: in Vermont they are to be found in the pastures and meadows at considerable elevations among the hills. In Florida the most destructive outbreaks occur in reclaimed swamp land, like the Everglades, where the eggs are placed in the ditch banks or along the margin of drainage ditches and canals. In some sections of the West the ditch banks, irrigation canals, and check ridges in the alfalfa fields become so sun dried and baked at the time the grasshoppers are most largely engaged in laying their eggs that it is impossible for them to make the necessary excavations. In these cases they almost invariably place their eggs down among the crowns of the alfalfa plants, from a few hundred to 2,000 in a single crown. It will be noted that in many of these localities, such as the shallow arroyos of

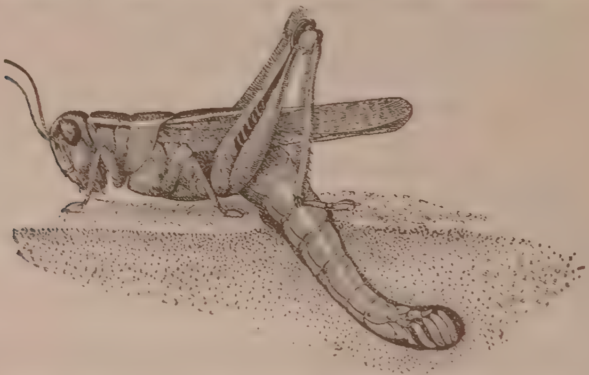
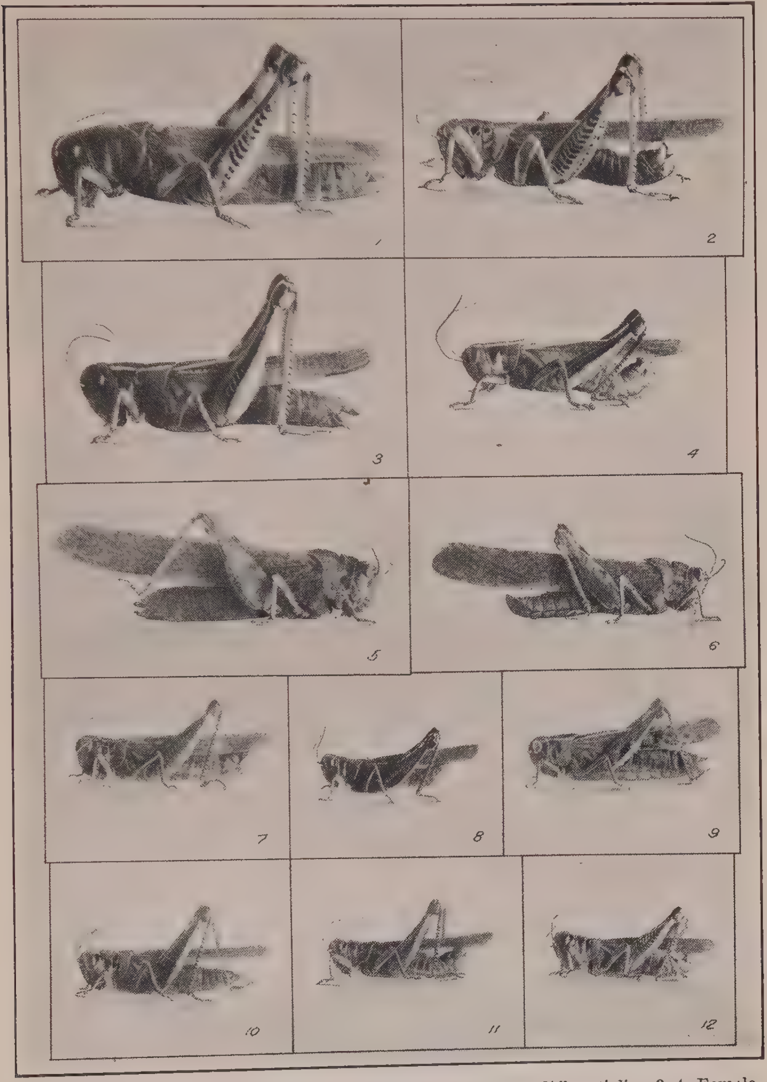


FIG. 7.—Method of egg-laying by two-striped grasshoppers.



1, 2. Female and male, the differential grasshopper, *Melanoplus differentialis*. 3, 4. Female and male, the two-striped grasshopper, *Melanoplus bivittatus*. 5, 6. Female and male, the Carolina grasshopper, *Dissosteira carolina*. 7, 8. Female and male, the lesser migratory grasshopper, *Melanoplus atlanis*. 9. Female, the pellucid grasshopper, *Camnula pellucida*. 10, 11. Female and male, the nonmigratory, red-legged grasshopper, *Melanoplus femur-rubrum*. 12. Male, the California devastating grasshopper, *Melanoplus devastator*.

Some of the More Common Destructive Grasshoppers of the United States.

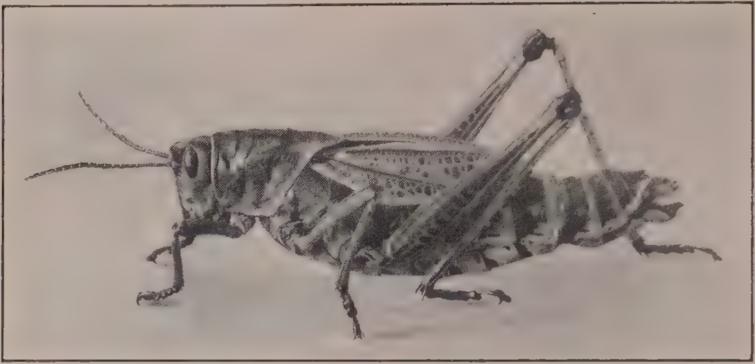


FIG. 1.—LUBBER GRASSHOPPER, DICTYOPHORUS RETICULATUS.

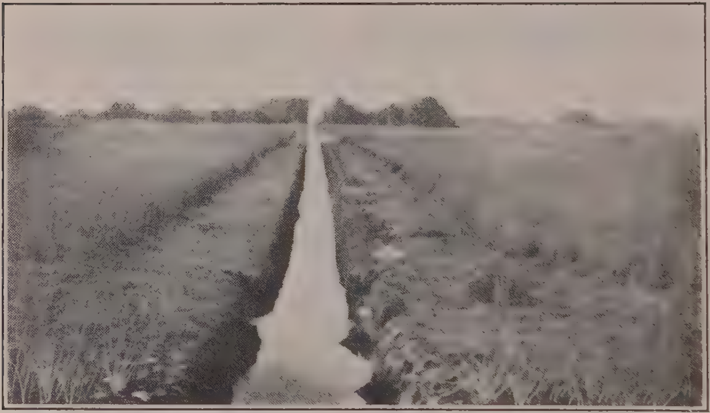


FIG. 2.—DRAINAGE DITCH IN THE FLORIDA EVERGLADES WHERE GRASSHOPPERS DEPOSIT THEIR EGGS.

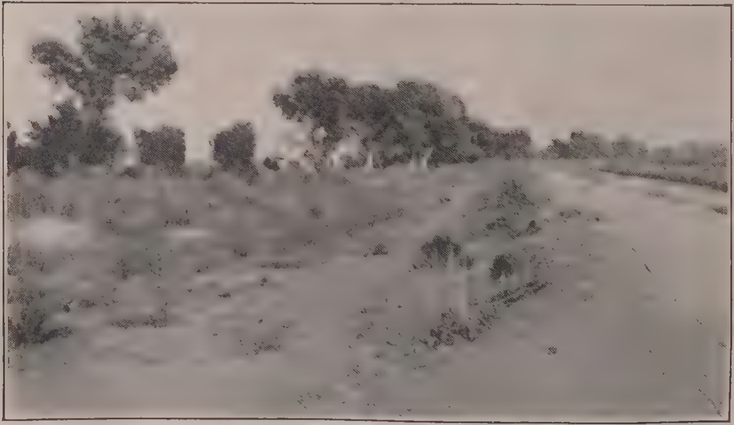


FIG. 3.—LOCATION BETWEEN TWO IRRIGATION DITCHES AT TEMPE, ARIZ., FAVORITE PLACE FOR OVIPOSITION BY GRASSHOPPERS.

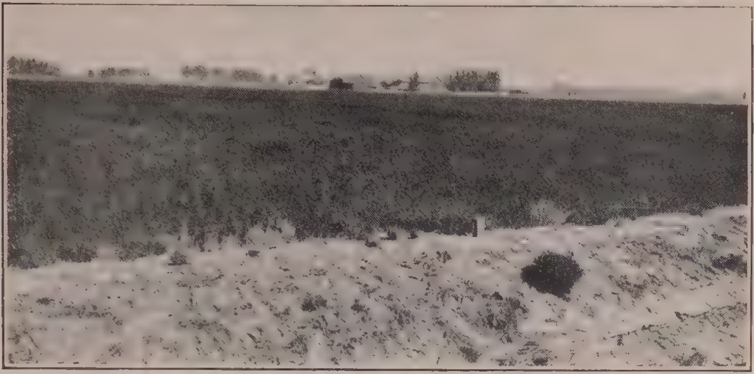


FIG. 1.—DITCH BANK WHERE GRASSHOPPER EGGS ARE PRESENT IN GREAT NUMBERS ABOUT ALFALFA PLANTS AND AMONG STUBBLE OF WILD OATS.

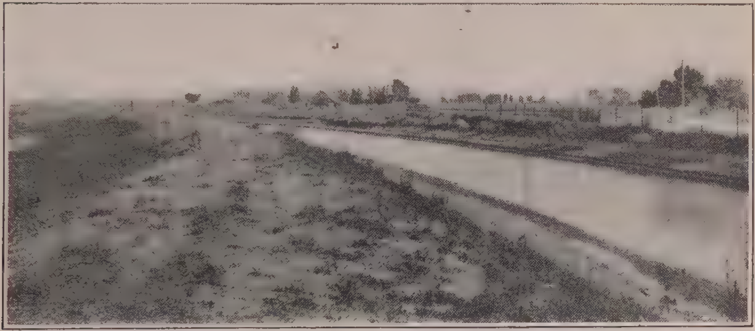


FIG. 2.—AN IRRIGATION CANAL RIGHT OF WAY WHERE CROWNS OF ALFALFA PLANTS CONTAIN THOUSANDS OF EGGS PER SQUARE FOOT.

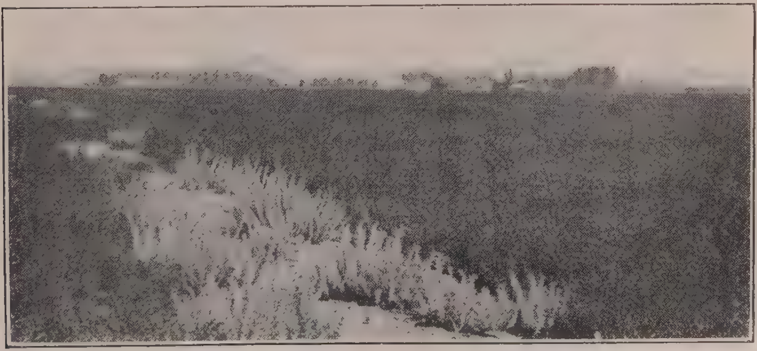


FIG. 3.—AN IRRIGATION CHECK RIDGE AND ALFALFA FIELD WHERE GRASSHOPPER EGGS WERE PLACED AROUND CROWNS OF ALFALFA.

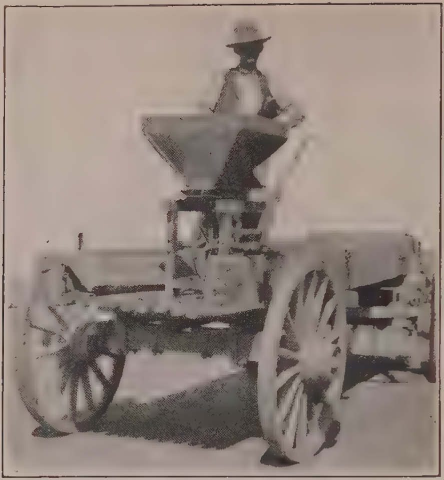


FIG. 1.—BROADCAST GRAIN SEEDER ATTACHED TO WAGON USED IN SOWING POISONED BRAN BAIT.

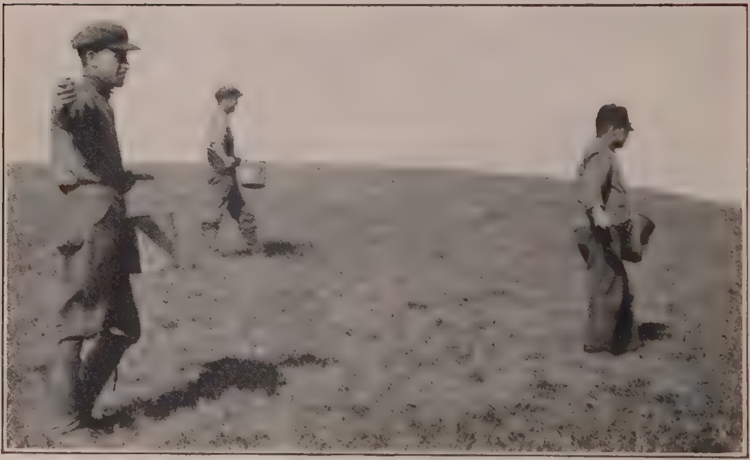
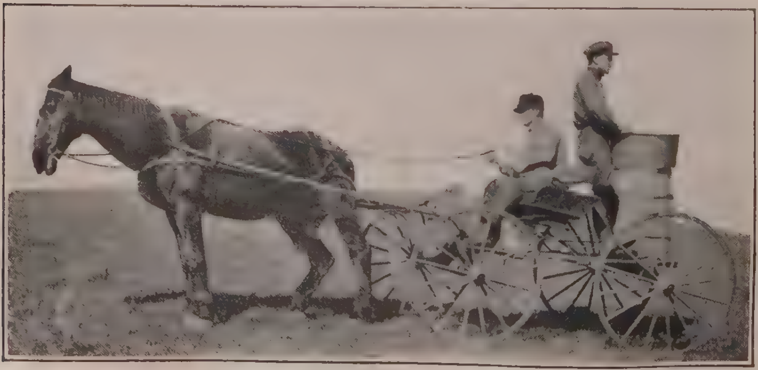


FIG. 2.—SOWING POISONED BRAN BAIT BROADCAST IN TREATING GRASSHOPPER-INFESTED FIELDS IN VERMONT.



New Mexico and Arizona and the waste lands of Idaho, Washington, and other Northwestern States, disking, shallow plowing, and harrowing in fall or early winter as a means of destroying the eggs are impracticable on a sufficiently large scale to be worth while. Attempts to reach the eggs by handwork, such as digging up the soil, are of use only in gardens or on truck farms. Over a large portion of country, therefore, the destruction of eggs is out of the question, and this method offers only partial relief against the most serious attacks of the pest.

The second method consists of various mechanical devices for the collection of grasshoppers from infested fields and uncultivated areas. Some of the oldest of these are known as "hopperdozers" and vary from a galvanized-iron pan, mounted on runners made of old wagon tires, containing water with a film of kerosene floating on the surface, into which the insects either hop or, striking the back of the pan, are thrown downward and are killed by contact with the kerosene, to a less expensive but perhaps less durable contrivance. Five hundred bushels were collected in the Merrimac Valley, N. H., by the galvanized-iron pan, as shown in figure 8. Plate LV, figure, 3 shows an enlarged modification of one of these so-called hopperdozers made use of in California in 1912, where about 300 bushels of grasshoppers were collected from a field of alfalfa containing about 100 acres.

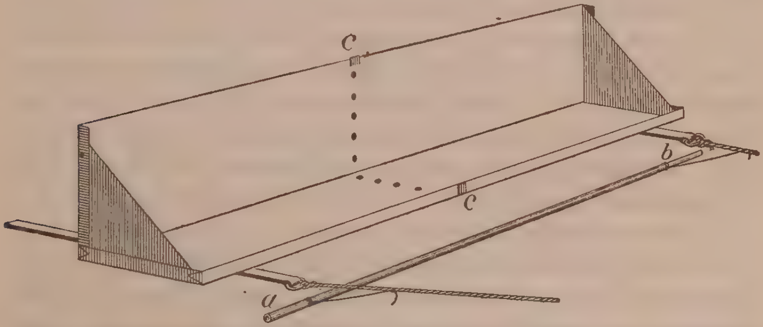


FIG. 8.—Galvanized-iron hopperdozer. Runners of old wagon tire are placed at each end (*a*, *b*), and another in the center (*c*) is turned over in the front and back to strengthen the pan at these points.

Although the hopperdozer will destroy great numbers of the pests, its use is not only tedious and expensive but inadequate to protect crops even where the greatest and most intelligent efforts are put forth. As one farmer expressed it, "For each individual killed it appeared as though an entire family came to the funeral." Other objections to the hopperdozers are that they require for their operation a comparatively level surface unobstructed by trees, stumps, or rocks, and the impossibility of using them in grainfields or meadows where the crop has reached any considerable height. In practice, therefore, their use is largely restricted to pastures and waste lands. The machines, however, should be employed whenever the conditions are suitable for them. Much can be accomplished by their use in forestalling an invasion of the grasshoppers, as they are often more effective before the insects have developed their wings and migrated long distances from their place of hatching.

The third method of fighting grasshoppers—the poisoned baits—was discovered years ago when poisoned bran bait came into use. Later, the so-called "Criddle mixture," named after Norman Criddle, of Manitoba, became popular. Mr. Criddle noticed that grasshoppers preferred fresh horse dung to any form of vegetation; that in the field the grasshoppers made for it from all directions. After they had finished with the dung they attacked the surrounding crop. It was also learned from observations that grasshoppers ate readily any article which had a salty taste. Salt, therefore, was added to the dung to make it even more attractive. The selection of Paris green as a third ingredient was largely a matter of cost and convenience. A mixture made up of 100 parts of horse droppings, 1 part of Paris green, and 1 part of salt found favor, particularly with the farmers and ranchmen of the West. It was mixed with sufficient water to make a thoroughly moist but not sloppy mash, or else the Paris green and salt were put in the water and this poured over the droppings.

Although generally regarded as a great improvement on the poisoned bran bait, because it was less expensive and composed of ingredients that were frequently more easily obtainable, the Criddle mixture did not prove invariably successful. Repeated cases of failure were reported in the use both of the Criddle mixture and the poisoned bran bait. Thus, in spite of years of investigation, the farmer was still without a defense against grasshopper attack upon which he could depend with absolute certainty.

In the fall of 1912 it became clear, both to the entomologists of the Kansas Agricultural Experiment Station and to the assistants connected with the Cereal and Forage Insect Investigations of the United States Department of Agriculture that a serious outbreak of the pest was impending. The experiment station entomologists at once set about to devise an improvement upon the poisoned bran bait that would render it more reliable when placed in the hands of the farmer for use in his fields. It was at this time that the discovery was made by the State officials that the adding of fruit, such as oranges or lemons, to this bait would render it more attractive, and hence add to its value. A grasshopper campaign was instituted and the materials were furnished by the different counties free of charge to the farmers, who mixed the bait and applied it under the direction of the State and Federal officers above mentioned. This work covered an area of about 12,000 square miles and required the use of upward of 1,000 tons of wheat bran and 40 tons of Paris green. The formula used was as follows: Wheat bran, 25 pounds; Paris green, 1 pound; cheap molasses or sirup, 2 quarts; oranges or lemons, 3 fruits. This extensive piece of work resulted in the destruction of 60 or 70 per cent of the grasshoppers, sometimes from 150 to 250 dead grasshoppers being found in a square foot of space. But even with this improved poisoned bran bait cases of failure continued to be reported from farmers, and in some cases even when the bait was prepared and applied by expert entomologists.

Clearly there was something wrong, as these failures could not always be charged to those making the application. For this reason a series of extended field experiments was undertaken covering outbreaks of different species of grasshoppers in New England, Florida, New Mexico, the Imperial, San Joaquin, and Sacramento Valleys in California, in Arizona, and in Oregon, care being taken to secure as wide a variation in existing conditions as possible. (See map, fig. 9.)

In the Merrimac Valley the area treated with the poisoned baits comprised some 700 acres, most of which was in the vicinity of Franklin, N. H., although a field or two were treated in the neighborhood of Concord. Here the Criddle mixture with the addition of fruits was found to be fully as effective as the poisoned bran bait and less expensive, though more difficult to mix and more disagreeable to handle. This last fact led farmers to use a shingle or paddle for its distribution in the fields. When this was done there was a tendency for the mixture to fall in piles or bunches and the results were correspondingly less satisfactory. When spread carefully by hand, the hands being cased in cheap rubber gloves, the best results were obtained. In some instances fields were treated in this way at a cost of 6½ cents per acre, and in one case, in a field of 30 acres that was disastrously affected with grasshoppers, the pest was exterminated at a cost of 11 cents per acre. The poisoned bran bait, made with coarse-flaked bran, was found equally effective but rather more expensive than the Criddle mixture, the cost being from 15 to 20 cents per acre. The mixing, however, was likely to be more thoroughly done. The application was less unpleasant and for reasons given the mixture was likely to be more generally distributed in the field and consequently more effective. The land in the river bottoms being practically level, the bait was largely applied by single individuals sowing it from the end of a

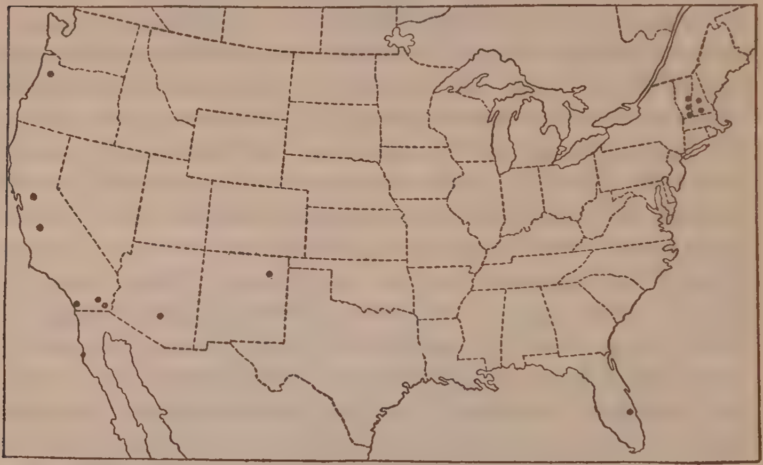


FIG. 9.—Map showing localities of grasshopper experiments in 1915.

buggy or light wagon. (Pl. LVI, fig. 3.) Early in this experiment it was determined that the amount of fruit should be doubled, that is, six fruits instead of three being used to 25 pounds of bran, and that the bait must be applied in the very early morning. Furthermore, the best sweetening substance was what is known as cattle molasses—the refuse sirup from the sugar factories which is largely used among dairymen in rations for dairy cows.

The general results in the Merrimac Valley demonstrated the fact that though grasshoppers had ravaged this country for nearly a century they might be practically exterminated throughout the entire valley. At the close of the season farmers declared that, after having carried out experiments with the new processes in cooperation with the Federal entomologists, they had no further fear of grasshopper attacks.

The broken and hilly nature of the land where outbreaks occurred in Vermont made it impossible to use a carriage or wagon in sowing the bait. The work was therefore done by hand. (Pl. LVI, fig. 2.) It was found that three men sowing the bait, as they would grass seed, could cover about 25 acres per hour. Here, too, it was necessary to double the amount of fruit ordinarily used and to apply the mixture in the very early morning. As a result of the experiment, which covered about four counties, the grasshoppers were nearly exterminated over an area where the annual loss from these pests for the last three years has been estimated at approximately $200,000. As the estimated loss in New England amounted to practically half a million dollars, it will be observed that the experiment not only demonstrated the efficiency of these poisoned baits when properly prepared and applied, but resulted in a saving of hundreds of thousands of dollars to farmers themselves.

As there seems to be no difference in effectiveness between oranges and lemons, it was left to the farmer to choose the less expensive of the two. Decayed fruit was not desirable, and it was found that many of the best results were obtained if the fruit was added in the early morning just before the application was made. In other respects the mixture was improved by being mixed the day before.

Experiments in Florida were carried out under radically different conditions, both as to climate, elevation, and rainfall.

The fields were located but a few feet above sea level and a different species of grasshopper, which is shown in Plate LII, figure 1, had to be dealt with. This particular grasshopper is unable to fly on account of its undeveloped wings, and is popularly known as the "lubber." It lays its eggs by preference in the drier portions of the Everglades and similar lands, such as the banks of drainage ditches, and is in consequence most numerous and destructive in Florida on recently drained land. By July, 1915, the grasshoppers had already eaten most of the crops in St. Lucie County, where the experiments were conducted, and the farmers were so badly discouraged that many of them were on the point of abandoning their lands. One land company offered a prize of $1,000 to anyone who would devise a method of controlling the pest. Not only had forage and truck crops suffered badly, young orange trees been defoliated, and vines and shrubs about the houses destroyed, but the grasshoppers were actually crawling over the houses, into the windows and doors, falling into the water supply, and becoming in other ways an intolerable nuisance.

In carrying out the poisoned-bait experiments it was found impossible to secure wheat bran, and, consequently, it was necessary to substitute ordinary middlings. As a result the mass became so sticky when moistened that it was difficult to distribute it evenly. Despite this fact, however, the bait proved thoroughly successful. Approximately half of the grasshoppers, which came from all directions to feed upon it, died within 12 hours and almost all of them were dead within 48 hours. The substitution of a corresponding bulk of limes for lemons and oranges did not lower the value of the mixture in the least.

On a semiarid plateau in New Mexico, with an elevation of 6,500 feet, the poisoned bait proved as successful as in New England and in Florida. It was noticed, however, that here the living grasshoppers devoured those which were first killed by the poison and then died themselves from the effects. This fact was observed also in California.

The experiments carried on in Arizona are especially interesting because of the light thrown upon the possible causes of previous failures with poisoned bran bait. In Arizona the formula first used was 100 pounds bran, 2 dozen lemons, 4 pounds Paris green. To this it had been intended to add 2 quarts of molasses, but the only material of the sort which could be obtained was ordinary table sirup, 2 quarts of which were added to the mixture. The first application, made in an alfalfa field, resulted in an almost complete failure, not more than 10 per cent at most of the grasshoppers being killed. A second trial in the same field met with no greater success. A quantity of damaged sorghum molasses was then obtained and substituted for the table sirup. A third trial of the bait in the same field where previous experiments were carried out resulted in the killing of 95 per cent of the grasshoppers.

In the experiments in California it was found quite important to spread the bait in the fields at a time when the grasshoppers were both hungry and in search of moisture. In arid sections the heat of the day leaves them very thirsty, and if they find well-moistened bait ready for them in the evening as they are about to ascend the plants on which to feed and pass the night they are practically certain to make a hearty feast of it. In the morning they have already fed upon the plants before they descend to the ground, and in consequence the bait is not so attractive. For the same reason the poison is more effective when no other moisture is available than when spread on ground wet from irrigation. For these reasons, in the San Joaquin Valley, Cal., where the area under treatment exceeded that of all other experiments combined by several thousand acres, it was found that the best time for application of the poison was at or about 4 o'clock in the afternoon, and that it was necessary to use 4 gallons of water to each 25 pounds of bran, rendering the mixture more moist than in the more humid regions. It was also found that where it was obtainable more easily alfalfa meal could be substituted for wheat bran with equally good results and that the application could be made much more rapidly and evenly by the use of a broadcast grain seeder placed in a wagon, precisely as if grain were to be broadcasted. (Pl. LVI, fig. 1.) The most effective sirup was found to be the refuse from sugar factories, costing 15 cents per gallon, the total cost of the poisoned bait varying from 20 to 25 cents per acre. The pulp from beet-sugar factories was found to be effective, but less so than either wheat bran or alfalfa meal. The results obtained in the Imperial, San Joaquin, and Sacramento Valleys, as well as in Oregon, were practically the same as in the other States. Where quick action is necessary, the practicability of substituting alfalfa meal for wheat bran is important, as frequently machines for grinding the alfalfa into meal are found on large ranches.

The small farmer who is called upon suddenly to protect his crop may apply by hand, either on foot or from a buggy or light wagon, the Criddle mixture with the added fruit, or he may use the poisoned bran mixture with the increased amount of fruit. If oranges or lemons are not obtainable easily, crushed tomatoes or crushed watermelons or limes equal in bulk to a half dozen lemons or oranges may be substituted.

The main points brought out by this extensive series of experiments are that the poisoned baits are effective under all climatic conditions, but that a greater amount of water must be used in the bait in arid and semiarid countries; that the molasses or sirup should be of the cheapest and most easily obtainable sort, but that brands with a strong penetrating odor, such as sorghum and New Orleans molasses, will prove much more satisfactory than those made from glucose. The application should be made in the early morning in the more humid sections of the country, but it will be more effective if applied in late afternoon in the more arid regions. So far as we have been able to determine, these baits will prove effective against all species of grasshoppers attacking crops in the United States.

HOW THE DEPARTMENT OF AGRICULTURE PROMOTES ORGANIZATION IN RURAL LIFE.

By C. W. THOMPSON, *Specialist in Rural Organization, Office of Markets and Rural Organization.*

IN nearly every bureau or office of the Department of Agriculture the work undertaken for the improvement of farming and of the conditions of farm life has to deal with organized activity in some form.

In the farming processes, from the first stage to the last, from the selection of the seed to the marketing of the product, as well as in the promotion of general social well-being in farm life, organization has proved its value, and as this fact is being realized more and more fully, organized methods are being employed in increasing measure.

The purpose of this article is to outline briefly the ways in which the advantages of organization are utilized under the various projects of the department and the means through which improved organization is promoted and encouraged.

ORGANIZATION OF THE INDIVIDUAL FARM.

Attention is first called to that part of the department's work which is concerned chiefly with the organization of the individual farm. Here the problems center around the question of how the various enterprises of a farm may be selected and combined so as to yield the largest net labor income. The efforts of the Office of Farm Management are especially devoted to these problems, and its aim is to determine what the factors are that promote efficiency in farm organization and to advise farmers in regard to these matters. One phase of this work is illustrated by a farm-management survey in Chester County, Pa. Tabulations were made for this county with a view to finding the most profitable percentage of crop area for each of the crops grown. In the light of results thus obtained a cropping system was outlined which was designed to produce the greatest profit under the given conditions, the system being based on successful local experience. Similarly, a proper correlation between live-stock enterprises and crop enterprises is being worked out.

While the Office of Farm Management endeavors to determine the principles governing efficient farm organization, special effort also is being made by the department, through the Office of Extension Work, North and West, in the States Relations Service, to utilize local demonstrations as a means of teaching the importance of efficiency factors in farm organization. Groups of 60 or more farmers are selected in various localities, their business is analyzed, and on the basis of the results, modifications in the organization of the various individual farms are suggested. This appears to be most satisfactorily accomplished by segregating a small number of the group whose net income is considerably higher than the average and using these farms as illustrations in pointing out the factors that make for the highest efficiency. Where groups of farmers desire help in the organization of farm-management clubs, through which farmers may associate to study the business side of their farming, the Office of Extension Work, cooperating with the State college, is prepared to give active field assistance. The Federal office has appointed 24 State farm-management demonstrators (paid partly by the department and partly by the States), who are members of the extension staff in their respective States and who are available for work in cooperation with county agricultural agents in developing farm-management demonstrations among farmers.

Even if the various individual farms had the benefit of efficient internal organization, they would still be handicapped greatly in their economic and social relations with each other and with the outside world, unless the advantages of organization were also secured for their many external relations. In one respect, particularly, the problems here confronted differ very materially from those involved in the organization of the individual farm.

The internal organization of a farm is concerned with the most efficient way of combining its various enterprises, and its problems are primarily economic rather than social; external organization, on the other hand, has to do with bringing people together to work for their mutual interests, and its problems are largely personal and social problems, even though the nominal purpose of a given organization may be an economic one.

ORGANIZATION OF BOYS' AND GIRLS' CLUBS.

Perhaps the least difficult, though by no means the least important, of the external organization work undertaken is that in connection with organization among boys and girls on farms. To the promotion of these activities the department has given considerable attention, especially through the States Relations Service and the Bureau of Animal Industry.

This work was begun by the department in the Southern States about eight years ago, and in the Northern States about three years ago. The object of the work is to instruct boys and girls in practical agriculture and home economics, bringing to them the latest results of research by the department. The number of boys and girls enrolled in the club work has grown rapidly, until it now approximates 250,000, and the activities of the members, which were at first confined to the growing of corn, now include the following projects: Corn, potato, home garden and canning, mother-daughter home canning, alfalfa, poultry, market garden, farm and home handicraft, forage, home-management, farm-management, sewing, and sugar-beet clubs. The Office of Extension Work in the South has a large corps of workers in Washington and a still larger force in the field, who give their entire time to boys' and girls' club work in the Southern States, and a similar organization in the Office of Extension Work in the Northern and Western States promotes club work among the boys and girls in its territory.

In the organization of boys' and girls' clubs the department works in close cooperation with the State colleges of agriculture through their extension departments. Arrangements are made for the appointment of State leaders in club work who are paid partly from Federal and partly from State funds. The State leaders are thus the employees of both the Department of Agriculture and the State colleges, and are responsible to both. Working usually through the county agents and the county superintendents of schools and local teachers, the State leader directs the organization of boys' and girls' clubs in communities which show sufficient interest in this movement. He travels throughout the State, explaining the work to boys and girls, to gatherings of teachers, and to various organizations interested, such as chambers of commerce, business men's associations, bankers' associations, women's clubs, and granges. Whenever possible, he is present at the first meeting of a group of prospective club members to explain the work and assist in the organization of the club. In many States the State leader has one or more assistants who devote their entire time to giving out instructions, visiting club leaders, looking after the details of organization, and keeping in touch with all the projects in the field. The county agricultural agent also is ready to assist in the organization of clubs within his territory, and to follow up their later efforts with expert advice and assistance.

Once every year, at Washington or at some other central place, a conference of State and district club leaders is held, at which the general policies and the general methods to be followed in the conduct of the work are determined for the ensuing year, and special instruction given in extension work.

In addition to the direct advice and help of the local leader, the county agent, or the State leader and his assistants, members of the clubs receive complete instructions by mail both from the department and from their State colleges. Thus the corn-club boys learn from the authorities of the department and the college the best way of fertilizing their plot of ground, preparing the seed bed, selecting their seed, planting, and cultivating. The canning-club girls are told how to cultivate their tenth of an acre of tomatoes or other vegetable, and are given full instructions for the work of canning. During the canning season demonstrations are given in as many localities as possible by the State agent or her assistants. The State leader furnishes all club members with blanks on which they are to report from time to time their method of procedure in growing their crops. At the end of the season a fair, festival, or contest is usually held, and prizes are given for the best exhibits or the best essays on the growing of the crop. The boy who has raised the most corn at the lowest cost becomes the club champion and competes with other club champions for the State championship. Prizes are given by local residents and by the State colleges, and diplomas are given to the State champions by the Secretary of Agriculture.

Another form of organization among farm boys which the department has promoted successfully is the pig club, which is under the direction of the Bureau of Animal Industry, cooperating with the State college. This work was taken up by the department in 1912, in cooperation with the State of Louisiana, the work having previously been started in that State under the direction of the State university. It has been gradually enlarged and extended until there are now pig clubs in 13 States, with a total membership of over 9,000. The Federal department and the State colleges cooperate in this work in the same way as in the boys' and girls' club work under the States Relations Service, a State pig-club leader being appointed jointly by the department and the extension division of the State college. The State leader sends out complete information on how to organize clubs, forms for reporting on the work, advertising posters, and other material. In each county or community there is a local leader who directly supervises the work of the members. The State leader, with the assistance of the offices in Washton, prepares circular letters on the care and management of pigs, and sends them either direct to the members or to the local club leaders. Each member of a club must secure at least one pig to feed during the season according to instructions from the State leader. The boys are encouraged to get pure-bred sows, if possible, and raise litters of pigs; or, they raise their pigs for meat and become members of the ham and bacon clubs. The Department of Agriculture, through the State leader, furnishes instructions on slaughtering and on curing the meat to the members of these clubs.

The Bureau of Animal Industry, in cooperation with the State colleges, also has charge of the boys' and girls' poultry-club work in the Southern States. In each of the six States which cooperate with the department in this work there is a State poultry-club leader who directs the organization of poultry clubs. He travels throughout the State explaining, both to the members and to their parents, the proper methods of poultry raising. Personal supervision is given by a local leader, who is usually the local school-teacher. The object of this type of organization is the improvement of farm poultry and the placing of the industry on a more profitable basis. The importance of pure-bred poultry is emphasized. Each member is required to obtain at least one sitting of pure-bred eggs, and then to feed and care for his birds according to instructions furnished by the department. A great increase of interest in poultry raising has been noticed in the States where this work has been conducted. The establishment of community poultry-breeding associations is also encouraged and has been undertaken by the older people in some instances as a result of the initial steps taken by the boys and girls. There are at present 326 boys' and girls' poultry clubs in the six States where this work has been undertaken, with a total membership of 3,722.

The success of the boys' corn clubs and pig clubs in the South has led those in charge of the work to plan for the extension of the movement through the formation of boys' farm clubs. In these clubs the boys who have already learned how to produce large yields of corn and how to feed pigs, in the earlier organizations, are taught the elementary principles of crop rotation, of the economical feeding of live stock, and of soil building.

ORGANIZATIONS OF FARMERS.

While the department is giving considerable attention to organization work among boys and girls on farms, increasing effort is being expended in the interests of improved organization among adult farmers. The purposes which may be served by organized activity among adults are many and varied, as, for example, the introduction of a new crop in a given locality; the maintenance of standard strains of seed; the control of plant diseases; the development of such industries as dairying and cattle raising, with the accompanying problem of controlling animal diseases; road improvement; the marketing of farm produce, with its many allied problems; the improvement of credit facilities in rural districts; the securing of better and cheaper insurance and facilities for communication; and finally, the improvement of home life and social relations among rural people.

As a part of the cooperative agricultural extension work the States Relations Service and the State agricultural colleges are doing a large amount of work in forming organizations of farm people through which the county agents and other extension officers may carry on their work.

Two general types of such organizations are now being utilized. County organizations, often called farm bureaus, are being formed which are expected to take the initiative in securing county or local support for the county agent, take part in the selection and appointment of the agent, and stand behind him in his efforts to advance the agricultural interests of the county. Many of these organizations include business and professional men as well as farmers, and their complex organization has given rise to special problems. However, it is now clearly apparent that while the cordial sympathy and support of all classes of our people in the movement for the improvement of agricultural conditions is very much to be desired, the farming people themselves should control and in the end determine the character and work of the organizations on which the extension system must depend for its local support.

Another type of local organization being tested in numerous places is the small community club. Where a considerable number of these clubs exist in a county they are often federated to form a county organization of some kind. The exact relations of organizations of either type to the extension system, the breadth and variety of their functions relating to extension work or other enterprises, and the most effective forms for their organization are as yet largely undetermined and they must still be considered as in the experimental stage.

In the Southern States about 500 communities were organized during the year ending June 30, 1915. These community organizations are engaging in some special work, such as cooperative breeding of live stock, purchasing and selling things required or produced on the farms, handling seed, and marketing crops, in addition to a study and demonstration of better farm practice. Many of these community organizations not only handle financial matters, but take an active interest in the social and educational betterment of the neighborhood.

In the Northern and Western States the county agents were instrumental in forming 875 local organizations for the promotion of agriculture and country life, including farmers' clubs for general purposes and associations for improvement of crop production, breeding of live stock, cow testing, purchasing, and marketing.

Much of the organization work of the different bureaus of the department, as described in this article, is done in cooperation with the county agents and other extension officers of the State agricultural colleges and the States Relations Service.

ORGANIZATION FOR THE ESTABLISHMENT OF A NEW INDUSTRY.

The introduction of a new crop or agricultural industry in a given locality is a step which may call for organization and cooperation among the farmers of that locality. The following illustrations indicate the manner in which the department lends its assistance in cases of this kind.

Prior to 1905, all of the paprika pepper used in this country was imported from Hungary and Spain. The scientists of the Bureau of Plant Industry had studied the characteristics of this plant, the kind of soil, climate, and cultivation which it required. Near Ebenezer, Florence County, S. C., were found what appeared to be the required soil and climatic and labor conditions. After experimentation had proved that the plant could be grown successfully there, the Department of Agriculture furnished seed to a number of farmers who entered into a contract under which they were to raise the crop as directed. The purpose of the department in supervising the work of marketing was to insure a product of proper standard, and its sale at a satisfactory price. A standard of pungency and appearance for the product was established and all pepper sold was graded according to this standard.

After the industry was well started the department withdrew from active participation and assisted in the formation of a pepper growers' association, which was to maintain the proper standard of seed. The association was to hold the seed and give it out only to members who agreed to place the marketing of the product in the hands of a representative of the association who was familiar with marketing conditions.

While some difficulties have been encountered by the association in maintaining a pure seed supply, a standard has now been established for first-class pepper, and the industry has become fairly well established.

An organization was necessary in this instance, first, to insure a sufficient quantity and such quality in the product as would enable it to be marketed to advantage, and second, to maintain sufficient authority over the growers to insure the production of a uniform product of high standard.

In 1905, studies on three of the irrigation projects in Arizona showed that these communities needed a high-priced staple agricultural product which would serve as a cash crop, giving high returns per acre, and not subject to deterioration in transportation. The Department of Agriculture selected Egyptian cotton as the crop which would best suit these conditions, and a committee, which later became interbureau, was developed in the Bureau of Plant Industry and known as the Committee on Southwestern Cotton Culture. This committee was created to encourage the establishment of this industry and to study the economic and agricultural problems connected with its establishment, especially on the irrigation projects of the Salt River Valley of Arizona and the Imperial Valley of California. To make the production of cotton economical it was necessary to have a sufficiently large acreage to pay for the installation of machinery for ginning and baling, and for economical marketing there was need of a sufficient number of bales to permit car-lot transportation. These facts were explained to the farmers on the projects, and they agreed to devote a sufficient number of acres to cotton. A ginning association was organized, and through it arrangements were made to secure from the department expert supervision looking toward the maintenance of a proper seed supply. For the latter purpose three things were necessary: (1) The maintenance of one variety; (2) the removal of inferior plants during the growing season; and (3) precautions against mixing good seed with that from inferior stock in the ginning. In addition to maintaining a high grade of seed and making the ginning economical and efficient, the association secured an expert classer for the grading of the cotton after it was ginned. There still remained the problem of finding a market for the product. The department, through the Office of Markets and Rural Organization, assisted in this by showing the farmers how much their cotton was worth, with the result that they decided to hold it until a market had been established.

Through the Horticultural Division of the Bureau of Plant Industry the department has encouraged the formation of the National Potato Growers' Association, with its constituent State and local associations, whose membership is made up of potato growers and handlers interested in obtaining better seed. These associations aim primarily to develop highly productive strains that are true to name. They also give attention to the improvement of the general commercial crop. The department furnishes these associations with literature on potato culture, and works in cooperation with the county agents in taking up special problems with the various associations.

In connection with the problem of improving the quality of seed potatoes has arisen the need of reliable sources from which farmers may secure seed potatoes that are free from disease and varietal defects. This has led the department to devote attention to the organization of a system of State certification of seed potatoes in a number of States.

ORGANIZATION FOR THE DEVELOPMENT OF AN ESTABLISHED INDUSTRY.

Dairying is an industry which requires various forms of organization among farmers for its highest development. The Department of Agriculture therefore has given particular attention to the promotion and improvement of organization in this field.

One of the essentials for profitable dairying is the keeping of accurate records of the milk and butter-fat production of individual cows; or, as it is commonly termed, the "testing" of the cows to determine which are yielding a satisfactory profit and which are not. Where farmers wish to form cow-testing associations, the Department of Agriculture furnishes information with regard to the proper methods of organization and supplies record blanks to be used in the work. In cooperation with certain States, the Federal department also maintains a number of dairy-extension specialists, who give assistance to farmers in forming cow-testing associations. These local associations are usually organized for one year, and when the association's agreement is not renewed at the end of the year, the department endeavors to find out the reason and to bring about a continuance of the organization. Assistance is also given to farmers whose records show that they do not get adequate returns from their animals. There are now over 200 cow-testing associations in the United States, with a membership of more than 5,500 farmers, involving not less than 100,000 cows.

Another form of organization which has for its object the improvement of dairy herds is the cooperative bull association. The Dairy Division of the Bureau of Animal Industry is interested in promoting this work and is prepared to give farmers information on how to organize and conduct the business of such cooperative associations. Inasmuch as some of these societies have organized and then failed to keep up the work, the Dairy Division is endeavoring to find out the causes of failure and to strengthen the organizations wherever such help is needed.

For a number of years the department, through this division of the Bureau of Animal Industry, has assisted farmers in the organization of cooperative creameries and furnished them advice regarding buildings, equipment, operation, and management. Where a sufficient number of patrons are reported, with enough cows to make the establishment of a creamery practicable, the department furnishes blue-print plans for a suitable building, with an estimate of its cost, and a list of the necessary machinery and its cost. Through its dairy specialists and field representatives the department also furnishes practical assistance to struggling creameries by advising them concerning business affairs. Creameries are sometimes deficient in such matters as the methods of grading cream, general business management, or the marketing of their product, and such defects have even jeopardized the existence of the organization. The department has been able to be of assistance in a number of such instances by pointing out the necessary changes in business methods.

ORGANIZATION FOR THE CONTROL OF ANIMAL DISEASES.

The manner in which the department assists farmers, through organization, to control effectively the spread of animal diseases is illustrated by certain work undertaken on the North Platte irrigation project. Specialists of the Bureau of Plant Industry had decided that pork production should be fostered on this project. A serious difficulty was encountered, however, in the presence of hog cholera. To meet this situation three adjacent counties were organized into a sanitary district, and, with the authority of the Department of Agriculture, this district was quarantined against the importation of any animals from outside except those that had been properly examined and approved. Suborganizations were established in each road district, and the road supervisor was made responsible for the burial of every hog that had died of the cholera. Provision was made for the vaccination of each diseased animal, and as a result of these organized measures the disease was eliminated and the development of the industry made possible. The Office of Demonstrations on Reclamation Projects of the Bureau of Plant Industry, which participated in this work of disease control, has also been of assistance in advising farmers' associations, including cow-testing associations, breeders' associations, and cooperative creameries.

ORGANIZATION FOR THE IMPROVEMENT OF PUBLIC ROADS.

The Office of Public Roads and Rural Engineering lends its aid to local organizations having for their object the improvement of the public roads, by supplying, upon request, drafts of tentative constitutions and by-laws and outlines for a working policy. The advice given depends largely upon the objects for which the association is formed and the prevailing local conditions. The advice given through correspondence is supplemented by the distribution of various publications on road making and maintenance; and where the movement is of sufficient magnitude to warrant it, representatives of the Office of Public Roads and Rural Engineering are sent to address the local organizations and point out ways and means by which they can accomplish the best results. It frequently happens that these local clubs are formed as a result of work in connection with good-roads trains operated by railroad companies and carrying exhibits supplied by the Department of Agriculture, illustrating proper road construction and maintenance. When such a plan is followed, the representatives of the Office of Public Roads and Rural Engineering are enabled to cooperate directly in the organization of a number of local road clubs or associations on a single trip. The efforts of local organizations are further supplemented through the loan of lantern slides for local use in lecture work.

ORGANIZATION FOR THE IMPROVEMENT OF MARKETING FACILITIES.

Specialists in the Office of Markets and Rural Organization are prepared to give assistance to farmers desiring to organize cooperative marketing and purchasing associations by furnishing forms for a constitution and by-laws and such suggestions as may aid in the establishment of the best known type of organization for given conditions. Similar assistance is likewise available for the organization of cooperative cotton-seed oil mills, cotton gins, warehouses, and cotton-grading associations. These specialists also endeavor to give suggestions to existing organizations whenever desired and to supply published material bearing on organization methods and printed forms for the use of cooperative organizations.

In connection with its studies of marketing business practice, the Office of Markets and Rural Organization has devised uniform systems of accounting for various types of cooperative marketing organizations, including fruit and produce exchanges, cooperative canneries, live-stock shipping associations, and cooperative stores. Samples of the forms comprising these accounting systems, with instructions for their use, are furnished free upon request to organizations desiring to install the systems; assistance is given by correspondence, and in some instances, where it is feasible, specialists are furnished to assist in the installation of these accounting systems.

In order to promote efficiency in the general business practice of cooperative marketing agencies, advice is given relative to the methods of securing capital, the necessary plant and equipment for operation, the duties of the various officers and departments of the business, and the necessary audits, both internal and external.

Several hundred cooperative and other farmers' elevators, creameries, fruit and produce exchanges, and live-stock shipping associations are using the uniform system of accounts devised by the Office of Markets and Rural Organization. During the past year actual assistance has been rendered in improving the general business methods of cooperative organizations representing over 45,000 individual producers.

Expert advice can be secured from the same office on transportation and storage problems, including questions connected with the collection of claims, car shortage, car refrigeration, and terminal storage, and on matters relating to grades and standards of perishable products, size and style of suitable containers, and market preferences with regard to containers and style of packing for such products. There was also available for shippers' associations during the summer of 1915 a daily series of telegraphic reports on the movements and prices of the following perishable crops: Strawberries, cantaloupes, tomatoes, and peaches. Live-stock shippers' associations can obtain the advice of specialists on problems connected with grading, market prices, market preferences, market demands and customs, the best available markets, and the transportation problems confronted in the marketing of live stock.

ORGANIZATION FOR THE IMPROVEMENT OF CREDIT.

Upon request, the Office of Markets and Rural Organization advises with farmers on matters pertaining to organization for credit improvement, including mortgage and personal credit associations. Before such organization work can be established successfully in any given locality, it is important to consider existing State legislation as well as the economic conditions involved. Where assistance is desired, the office endeavors to study the particular conditions involved and to aid in perfecting organization agreements adapted to such conditions. As far as possible active field assistance is given for this purpose, as in the case of a cotton growers' association in Arkansas, whose members have entered into an agreement under which the association indorses mortgage loans for its members.

ORGANIZATION FOR THE DEVELOPMENT OF MUTUAL INSURANCE AND TELEPHONE COMPANIES.

Similar assistance is also given, wherever desired, to farmers' mutual insurance companies, including fire, hail, live-stock, and windstorm insurance, and to telephone companies. This includes not only suggested forms of constitution and by-laws but also advice with reference to methods of procedure and business practice. A considerable number of companies have already been advised by correspondence regarding problems of organization.

ORGANIZATION FOR THE ENCOURAGEMENT OF SOCIAL ACTIVITIES.

Through the Office of Markets and Rural Organization the department has given active assistance, in cooperation with State or local agencies, in the conduct of social and economic surveys and in the promotion of suitable organization work as suggested by such surveys, especially in the States of Alabama, North Carolina, and Virginia. Experiments in the improvement of community and county fairs have been conducted in Alabama and Maryland, with successful results in the localities concerned. As a result of experiments in Chilton County, Ala., at least 40 local community fairs were held in various parts of the State during 1915.

The department has also studied organization work in the interests of health improvement for the purpose of detecting sources of prevalent diseases in communities, as well as for the improvement of general health conditions. Thus organization work was effected by which analyses of water were undertaken in a number of communities, revealing a widespread source of infection for typhoid fever. This was followed by further organization work through which all persons in certain communities were vaccinated. Similar assistance was rendered in organization work for the maintenance of a county rural nurse.

The Office of Markets and Rural Organization endeavors to advise, wherever communities are interested in the organization of "clean-up" or "get-together" days, or where communities desire to meet periodically for the discussion of matters of social and economic interest and community improvement. Cooperative arrangements have been made with one State under which suggested programs for such meetings are supplied to communities throughout the State.

PURPOSE OF ORGANIZATION WORK.

Reviewing all the various types of organization through which the Department of Agriculture seeks to promote the welfare of the farmer, it may be noted that in every case the organization is undertaken for some specific purpose, and that that purpose is one which can better be accomplished through concerted effort than through individual action alone. This represents the general policy of the department with regard to organization among farmers. The department does not encourage organization simply for the sake of organization, nor does it encourage the indiscriminate formation of organizations for any and every object whatsoever; for some objects may be accomplished efficiently and economically by individuals working each by himself.

For the accomplishment of those objects which clearly call for cooperative or coordinated action on the part of the farmers, the department encourages a more efficient use of existing organizations, where that is practicable, either by inducing them to take up new lines of activity, or by pointing out more efficient methods of carrying on the activities for which they were originally formed. Where new associations are needed, the department endeavors to secure organizations which are as simple in form as possible, and to keep in the foreground the object of the organization rather than the organization itself.

ECONOMIC IMPORTANCE OF THE FEDERAL INSPECTION OF MEATS.

By George Ditewig, D. V. S., *Meat Inspection Division, Bureau of Animal Industry.*

THE Federal inspection of meats and meat food products is of economic importance in several respects:

It is the instrument by which an important part of the export commerce of the United States has been secured and preserved.

It is a service in hygiene and sanitation of incalculable value to the country at large.

It is the most thoroughly equipped agency through which may be gathered the data necessary to the success of any broad program having for its object the conservation of the National meat food supply through the eradication of damaging and destructive diseases from the food animal herds of the country.

The meat inspection service possesses other elements of economic importance, but for the purposes of this article these need not be enumerated.

Federal meat inspection is conducted under the provisions of the act of Congress of June 30, 1906, commonly designated the "meat inspection act," the purpose of which is to prevent the use, in interstate or foreign commerce, of meat and meat food products which are unfit for human food. In brief, this law authorizes the Secretary of Agriculture, at his discretion, to make, through inspectors, an ante-mortem examination and inspection of all cattle, sheep, swine, and goats to be slaughtered and the meat and meat food products of which are to be used in interstate or foreign commerce; it also directs the Secretary to make, through inspectors, a post-mortem examination and inspection of the carcasses and parts thereof, and an examination and inspection of all meat food products, of all such animals prepared for human consumption at any slaughtering, meat canning, salting, packing, rendering, or similar establishment for transportation as articles of interstate or foreign commerce. If, on such post-mortem inspection, the articles are found to be wholesome, within the meaning of the law, it is the duty of department inspectors to mark them "Inspected and passed," and, if not, to mark them "Inspected and condemned." Condemned articles are required to be destroyed for food purposes in the presence of an inspector.

Inspection of meat and meat food products derived from the animals mentioned, prior to entering into interstate or foreign commerce, is mandatory, except in the case of retail butchers and retail dealers supplying their customers, and of animals slaughtered by a farmer on the farm. The law prohibits meat or meat food products being sold or offered for sale in interstate or foreign commerce under any false or deceptive name, and it provides that the Secretary shall prescribe the rules and regulations of sanitation under which inspected establishments shall be maintained, and that he shall make, from time to time, such rules and regulations as are necessary for the efficient execution of the provisions of the statute.

The meat-inspection regulations based on the act require that the proprietor or operator of each slaughtering or food-preparing establishment to which the law applies shall make application to the Secretary of Agriculture for inspection. Retail dealers who are granted a qualified exemption under the terms of the law must make application for such exemption. When an application for inspection is received by the department, the establishment to which it refers is examined by an inspector of the Bureau of Animal Industry, under which the service is administered, and the applicant is advised as to the requirements of the regulations relative to the facilities to be furnished by the establishment for the conduct of the inspection, also as to the corrections and improvements to be made, if any are needed, for placing the plant in a sanitary and otherwise satisfactory condition. When the inspection facilities have been provided, and the defects as to the sanitary conditions corrected, an official number is assigned by which the establishment is designated and its products identified, and inspectors are stationed at the establishment to conduct the inspection.

As showing that the Federal inspection of meats is a service in hygiene and sanitation of incalculable value to the country at large, and that this service is performed at an extremely low cost, the following facts and figures are cited:

In the fiscal year ended June 30, 1915, inspection was maintained at a total of 896 establishments situated in 247 towns and cities in the United States. The total of animals inspected at the time of slaughter was, in round numbers, 58,000,000, divided approximately as follows: cattle, 6,964,000; calves, 1,735,000; goats, 165,000; sheep, 12,909,000; and swine, 36,247,000. The number passed on the slaughter inspection was 57,608,000. The number of carcasses passed under special restrictions, that is, after they had been subjected to sterilization, was 124,270. The whole carcasses entirely condemned on this inspection, and which were destroyed to prevent their use for human food, numbered 290,606. The number of carcasses retained on the post-mortem inspection for the removal and condemnation of a part affected with some disease or condition which rendered the part unhealthful or otherwise unfit for food without affecting the remainder of the animal was approximately 3,600,000. In addition to the carcasses condemned on the slaughter inspection there were condemned for various causes on the ante-mortem inspection, including those found dead or in a dying condition, 106,962 animals.

The reports covering inspections and reinspections of meats and products prepared and processed in the establishments show an aggregate of several billion pounds, while the quantity of meats and products condemned on such reinspection on account of having become tainted, rancid, or otherwise unwholesome, amounted to several million pounds.

Under the tariff act of October 3, 1913, meats and meat food products are admitted into the United States free of duty, subject, however, to the inspection requirements prescribed by the Secretary of Agriculture. The regulations governing the inspection of imported meats are similar to those prescribed under the meat-inspection act for domestic meats and products. The imported meats and products inspected during the year totaled 245,000,000 pounds.

The number of employees in the Meat-Inspection Division at the close of the fiscal year was 2,550, consisting of approximately 780 veterinarians, graduates of accredited colleges, and 1,600 lay inspectors who are trained laymen, the remaining number being made up of administrative officials, specialists, laboratory inspectors, and clerical forces.

The sum appropriated by Congress for meat inspection for the fiscal year 1915 was $3,375,000, within which sum the service was maintained. In other words, the service to the people of the United States cost less than 6 cents for each of the 58,000,000 animals slaughtered. This small charge per animal covered the entire inspection from the first inspection of the live animal to the final examination of the meats and the finished products when ready for delivery to dealers or consumers, and is not attained at the expense of efficiency in the service. In fact, the reverse is the case, in that it is the constant endeavor to improve and strengthen the service.

The advantages residing on the side of the Federal inspection in respect to cost of operation are widespread and effective organization, training and specialization in duties, and heavy volume of operations upon which to compute unit cost. It would be quite impossible for any State or municipality in the United States to maintain for itself a system of inspection of the same completeness and efficiency except at a ratio of expense very much in excess of that of the Federal inspection. Inasmuch as upward of 60 per cent of the cattle, sheep, swine, and goats slaughtered for food in the United States are inspected under Federal inspection, the economic benefit accruing to the community at large through the Federal service is apparent.

The Federal inspection of meats and meat food products secured and has preserved an important part of the export commerce of the United States. Commercial and economic necessity was the chief consideration leading to the earliest enactments by Congress providing for meat inspection (acts of Aug. 30, 1890, and Mar. 3, 1891). Entrance to foreign markets was necessary for the disposal of the great surplus of food animals and meats produced in the United States. Prohibitions and restrictions had been raised to such an extent by different foreign governments against the importation of American meats that inspection and certification by our Government to overcome them became necessary. Accordingly, the laws referred to were enacted by Congress, inspection was established, and certification provided as to the soundness of the animals and of the wholesomeness of the meats passed under such inspection. The result was expansion in the export trade in meats and food animals, with corresponding benefit to the agricultural interests of the United States. These laws did not contemplate an inspection so broad and effective as the one provided for by the act of June 30, 1906; nevertheless, there was built up a system of competent inspection for all the meats exported to countries requiring certification by this Government, and a like inspection for a high percentage of the fresh meats shipped interstate in the United States. Moreover, when the present law was enacted the organization which had been formed was qualified to take up the work of carrying its broad and more stringent provisions into effect.

The need of the Federal inspection of meats and meat food products destined for export is necessary to-day as in the past, notwithstanding that the United States has become a meat-importing country. The decline in domestic production which has led to these importations has been very marked as regards fresh beef and mutton, but there continues to be a considerable surplus in certain lines of pork meats, lard, oleo oil, edible tallow, and lard substitute, for which foreign markets must be sought. The requirements of foreign governments relative to the certification of meats admitted by them have increased rather than diminished, and an inspection that will meet them remains an economic necessity. The number of pounds of all forms of meat and meat food products derived from cattle, sheep, swine, and goats exported under Federal certificates of inspection has been substantially as follows, the years cited being the Federal fiscal years, and the amounts stated in round numbers:

In the 5-year period from 1898 to 1902, inclusive, the lowest annual exportation was 640,000,000 pounds, and the highest 766,000,000 pounds. In the 5-year period from 1903 to

1907, inclusive, the lowest annual exportation was 531,000,000 pounds, and the highest 1,360,000,000 pounds. The explanation of the great increase indicated in the last-named total is that, beginning with 1907, the certifications were made to include certain meat food products for which certification had not previously been required. In the 5-year period from 1908 to 1912, inclusive, the lowest annual exportation was 815,000,000 pounds, and the highest was 1,545,000,000. For the fiscal year 1913 the exports were 977,000,000 pounds, and in 1914 they were 904,000,000. For the fiscal year ended June 3, 1915, the exports totaled 1,391,000,000 pounds.

The Federal meat-inspection service is coming to be recognized as the most effective existing agency for collecting, on a broad scale, data absolutely necessary to the success of any extensive program for the eradication from the food herds of the country of such diseases as tuberculosis and certain serious parasitic affections, the presence of which is not suspected in the living animal until the damage they do is beyond remedy and the losses they cause are beyond prevention. The eradication, or a material reduction, of these diseases will lessen enormously losses on the farm, and in a corresponding measure remove the cause of the losses from condemnations under inspection. Every success in this direction is a material advance in the conservation of the Nation's possible meat supply. No country should deem itself so rich that it may be indifferent to losses of this character. Measures for their reduction or elimination should be employed, and at least two ways in which meat inspection is concerned are open for efforts in this direction. The first is to see that the rules governing condemnation on inspection are based on sound principles and that they are so intelligently applied that unwarranted condemnations shall not occur. The second is that means be devised and effected for the eradication, from affected herds on the farms, of diseases which, by their presence, make meats dangerous or otherwise unfit for human food. These proposals will be discussed in their order.

The first proposal has been substantially met under Federal inspection in that the rules of condemnation on account of disease have been prepared by scientific and practical experts and, moreover, essentially conform to the views expressed by a commission of seven men outside of the department convened in 1907 by the Secretary of Agriculture to study the subject and express opinions upon the disposal of carcasses affected with various diseases and abnormal conditions. This commission was composed of eminent pathologists and hygienists headed by Prof. William H. Welch, of Johns Hopkins University, as chairman. That the regulations are intelligently applied is indicated by the fact that all condemnations on the post-mortem inspection under the Federal system are determined by graduated veterinarians and then only after they have received instruction in the practical application of the rules after admission into the service. Therefore, important reductions in the losses entailed by inspection can not be made in this direction without impairing the safeguards which it is the function of meat inspection to establish and maintain. The procurement of reductions in this way can not be given favorable consideration. Therefore, recourse must be had to the second proposal.

The economic importance of the Federal meat inspection in relation to the eradication of disease from food herds lies in the fact that territorial areas and localities in which the obscure diseases referred to prevail to a damaging extent must first be known before any extensive plan of eradication can be carried into effect. This information the Federal meat inspection system is best equipped to supply. As previously stated, its inspectors, stationed in many States, make actual post-mortem examinations of upward of 60 per cent of the cattle, sheep, swine, and goats slaughtered for food in the United States, and in every case when disease is found the diagnosis and the character and extent of the lesions are made a matter of record. This information, used in conjunction with live-stock shipping records, is sufficient in most cases to fix the territory of origin, and in many cases is sufficiently complete to lead to an identification of the farm and herds that supply diseased animals for slaughter. With the perfection of shipping records and other means of identification, inspection data could be supplied even more rapidly than they could be used under any probable scheme of eradication.

The value of information thus collected has been proved in important instances in which it has been used for disease-eradicating purposes. The Federal Government, however, is without sufficient authority to enter the States without their consent to inaugurate independently so important and beneficial a project; therefore an adequate exercise of their police power by the several States in which the diseased herds are found will be essential to success. It is not too much to hope that the time is not distant when an enlightened public knowledge and appreciation of the importance of such a program of disease eradication will lead the States to grant their officials the power and support necessary to its success. When that time arrives the Federal meat-inspection service will be found ready to provide in great volume the essential data, and in other ways contribute to the success of the undertaking.

That the Federal inspection of meats and meat food products destined for commerce possesses great economic importance the facts submitted show, but of far greater value and of higher importance than this is its service in the field of hygiene, sanitation, and protection of the health of the people.

THE PRODUCTION AND HANDLING OF GRAIN IN ARGENTINA.

By Laurel Duval,

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NOTWITHSTANDING the fact that about 70 per cent of the corn grown in the world is produced in the United States, the surplus for export has decreased in recent years to such an extent as to permit importations of this cereal. These importations have been made chiefly from Argentina, which is the principal corn-surplus producing country of the world. The importation of corn from Argentina began as early as 1909, although only relatively small quantities were received until the latter part of 1913, at which time the imports showed a decided increase. Several cargoes each month were received until the outbreak of the European war, since which time importations have been received only occasionally.

The corn imported prior to 1913 was used primarily for manufacturing purposes, and comparatively little, if any, found its way into the interior of the country until the winter of 1913–14. However, the bulk of the corn imported from Argentina has been ultimately exported from the United States in the form of manufactured products. The importance of the corn imports from Argentina is relatively small, when it is considered that the importations during the past seven years amounted only to approximately one-tenth of 1 per cent of the total production of corn in the United States during the same period.

It is very possible that Argentina will, with the return of more normal conditions in ocean freights, continue to send corn to this market, especially in years of decreased production in this country. This, together with the fact that Argentina is taking a place of ever-increasing importance in the production of grain for export to the European markets, which also take most of the surplus grain from the United States, makes a discussion of the methods of handling grain in Argentina of considerable interest.

THE CEREAL REGION OF ARGENTINA.

Argentina occupies approximately the same position south of the equator as that of the United States north of the equator, the total area being nearly two-fifths the area of the United States. A conservative estimate of the area which might be used for agricultural purposes would be 250,000,000 acres, of which possibly 120,000,000 acres would then be available for cereal and flaxseed growing. At the present time there are cultivated slightly more than 60,000,000 acres, of which approximately 34,500,000 acres are devoted to wheat, corn, flaxseed, oats, barley, and rye.

Wheat growing in Argentina first began on a large scale in the Province of Santa Fe. In 1895 this Province produced about half of the wheat of the entire country. However, since that time the area devoted to wheat has gradually extended west into the Province of Cordoba and south into the Province of Buenos Aires. Each of these Provinces is now producing more wheat than the Province of Santa Fe. The Territory of La Pampa Central, which only a few years ago was not considered by many as having a very promising future in the production of cereals, is gaining in importance with great rapidity, and there is every reason to believe that in the not distant future this Territory will take first place in the production of wheat in Argentina. The present wheat belt extends from 30½° to 39½° south latitude.

The corn region, while more or less in the same general section as the wheat belt, is principally situated near the Parana River in the lower part of the Province of Santa Fe, and in the northern part of the Province of Buenos Aires. The center of corn production is at about 33½° south latitude.

Flaxseed is grown chiefly between 31° and 35° south latitude, the center of production being from one-half to three-quarters of a degree nearer the equator than the center of corn production.

Nearly all of the oats in Argentina is grown in the Province of Buenos Aires between 34° and 39° south latitude. While oats is the fourth crop in point of acreage, there being only 2,500,000 acres utilized for its production, the increase in the oats area from 1895 to 1913 was over 3,000 per cent.

The production of barley and rye has not attained any great degree of importance in Argentina. The number of acres utilized for the raising of barley is approximately 418,000, and only 228,000 acres are devoted to the growing of rye. These two cereals are grown chiefly in the Province of Buenos Aires.

The region in which the cereals are cultivated extensively is known as the "Pampa," and is for the most part a vast fertile plain with a slight incline toward the sea. The cereal zone (Pl. LVII), which covers an area of approximately 160,000,000 acres, is included within the Provinces of Buenos Aires, Santa Fe, Cordoba, Entre Rios, and the Territory of La Pampa Central. The combined area of this entire region is, in round numbers, 205,000,000 acres. In addition to the production of over 500,000,000 bushels of grain and flaxseed, there are grown within the cereal zone more than 12,000,000 acres of alfalfa. Likewise, over one-half of the 110,000,000 head of cattle and sheep are raised in this same territory. In the principal part of the cereal zone there are usually no trees visible for miles, and then only such as have been planted around the dwelling houses or here and there a solitary "ombú" tree, with its gnarled roots protruding out of the ground. If this region were placed in the corresponding latitude in the United States, it would cover an area averaging about 425 miles wide and extending from the twenty-eighth to the forty-first parallel (Pl. LVIII).

The soil in this region is exceptionally fertile, a considerable portion being not unlike the rich soils of Illinois, both in productiveness and in appearance. The climate is mild, the temperature seldom rising above 95° F. in summer and rarely falling below 32° in winter, while snow is practically unknown.

IMPORTANCE OF CEREAL AND FLAXSEED GROWING.

Argentina has developed during the past 25 years from a country of little importance in the exports of grain and flaxseed to the most important of all of the surplus-producing countries. In 1891 only 17,500,000 bushels of grain and flaxseed were exported, of which 14,500,000 bushels were wheat, 2,500,000 bushels corn, and 500,000 bushels flaxseed. In the year 1913, after satisfying the domestic needs of the country, there remained for export nearly 397,000,000 bushels of grain and flaxseed.

The rapid increase in the production of grain and flaxseed and its importance as a factor in the national wealth of the country are better illustrated by comparing the value of the exports of the cereals and flaxseed with the export value of the products of stock raising, which is now the country's second greatest source of wealth. From 1896 to 1902, a period of 7 years, the value of the stock, meat, and by-products exported averaged slightly more than $84,500,000, while the average value of the grain, including wheat flour and of flaxseed sold abroad during the same period, was a little less than $50,000,000. From 1903 to 1907, a period of 5 years, the average value of the products of stock raising exported was, in round numbers, $116,500,000, as against $141,250,000, the average value of grain and flaxseed. The difference in favor of the cereals and flaxseed was even greater for the 6 years from 1908 to 1913, when the average value of the surplus grain and flaxseed was nearly $221,000,000, while the exports of live stock, meat, and by-products netted an average of $153,000,000.

The relative importance of Argentina in the world's international trade in corn, wheat, oats, and flaxseed is illustrated in Plate LIX. The information given in Plates LIX and LX is an average of the exports for the 3 years 1911, 1912, and 1913, with the exception of the exports of corn from Argentina, which is an average for the 2 years 1912 and 1913, the exports for 1911 being omitted in this case, owing to the fact that practically the entire crop of 1911 was lost.

Of the surplus corn-producing countries Argentina occupies first place, furnishing 54.9 per cent of the total international trade, the nearest competitor being Roumania, with only 15.4 per cent. While Argentina occupies fourth place as a wheat-export country, furnishing 15.8 per cent of the total supplied by the 11 surplus wheat-producing countries, there is only a difference of 4.1 per cent between Argentina and Russia, the latter occupying first place, with exports equaling only 19.9 per cent. The United States occupies second place, supplying 18.1 per cent, and Canada is a close third, with 17.3 per cent. These four countries furnish 71.1 per cent of the wheat required by importing nations. During 1911, 1912, and 1913 there were exported from Argentina an average of nearly 53,000,000 bushels of oats, or 33 per cent of the total exported by the six surplus-producing countries, Russia being first, with 40.8 per cent. Argentina occupies first place in the exports of flaxseed, shipping 24,489,000 bushels annually, which is 46.9 per cent of the world's trade, the second place falling to British India, with exports equaling 33 per cent.

Although the combined exports of corn, wheat, oats, and flaxseed from Argentina were over 100 per cent greater than the exports from the United States, the average production of these same crops in the United States is approximately 10 times as much as the production in Argentina. This is graphically illustrated in Plate LX, where a comparison is made of the average production, percentage exported, and yields of corn, wheat, oats, and flaxseed for the United States and for Argentina during the years 1911, 1912, and 1913. While the average area devoted to corn, wheat, and oats in the United States is much greater than in Argentina, the area sown to flaxseed in Argentina is practically 50 per cent more than the acreage of flaxseed in the United States. Of the enormous corn production in the United States, which averages nearly 2,850,000,000 bushels, only 1.7 per cent is exported, while Argentina, with an average production of only 246,250,000 bushels, exports 77.1 per cent. The average yield per acre[1] of corn in Argentina for the three years was 27½ bushels, against 27 bushels, the average yield in the United States. The percentage of the wheat crop of the United States exported was 17.5 per cent, while Argentina exported 60.6 per cent. Of the oats produced in the United

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[1] In Argentina the averages are computed on the acreage sown and not on the acreage actually harvested, as is the practice in the United States.

States, only 1.1 per cent was available for export, while Argentina had an average surplus of 82.4 per cent of the crop. In the production of flaxseed, Argentina exceeds the United States by over 10,000,000 bushels, although an average of only four one-hundredths of 1 per cent is exported from the United States, while 81.8 per cent of the Argentina crop is available as a surplus. The average yields per acre of flaxseed are the same in both countries, viz, 7½ bushels. The exceptionally high percentages of grain available for export are explained by the fact that little or no grain is used in Argentina for the fattening of cattle, as the mild climate permits the stock to graze throughout the entire year, and the small population, approximately 8,500,000, needs comparatively little grain for food purposes.

LAND DISTRIBUTION AND ITS EFFECT ON AGRICULTURE.

The manner in which the public lands were first parceled out led to the acquisition of very large tracts by individuals and corporations, and while Argentina may be called a country of immense estates, there is a notable tendency toward smaller holdings. This is especially true in the cereal region and in certain other parts where special cultivations are carried on, such as in the Province of Mendoza, the seat of the wine industry. Land speculation during the past few years has been an important factor in reducing the size of individual holdings. Properties containing more than 12,500 acres are decreasing quite rapidly, although there are many holdings containing a much greater area than this, even in the cereal region.

According to statistics collected by the Department of Agriculture of Argentina, during the crop year 1912–13 there were harvested, from 84,076 farms in the cereal region, 23,571,849 acres of wheat, flaxseed, barley, rye, or millet, an average of 280.4 acres per farm. Of the total number of farms, 32.62 per cent were operated by the owners, while 67.38 per cent were operated by renters. The reasons for such a high percentage of rented farms are many. Perhaps the most important reasons are, first, the difficulty of acquiring small farms at reasonable prices, although it may be said that this is more apparent than real, as many of the companies and individuals having large tracts are offering land for sale in small farms on reasonably favorable terms. Besides this, there are large tracts of public lands which the Government makes available from time to time. Second, the people who have been attracted to the country are for the most part of two classes—those with little or no capital, who are obliged to begin on rented farms or as "peones," or those with plenty of capital, who have acquired large farms. By practicing thrift to a very high degree, some of the former have been able to purchase their own properties. Among the renting class there are many who have sufficient funds to purchase a small farm, but they prefer to employ their capital on large rented farms rather than to farm on a small scale.

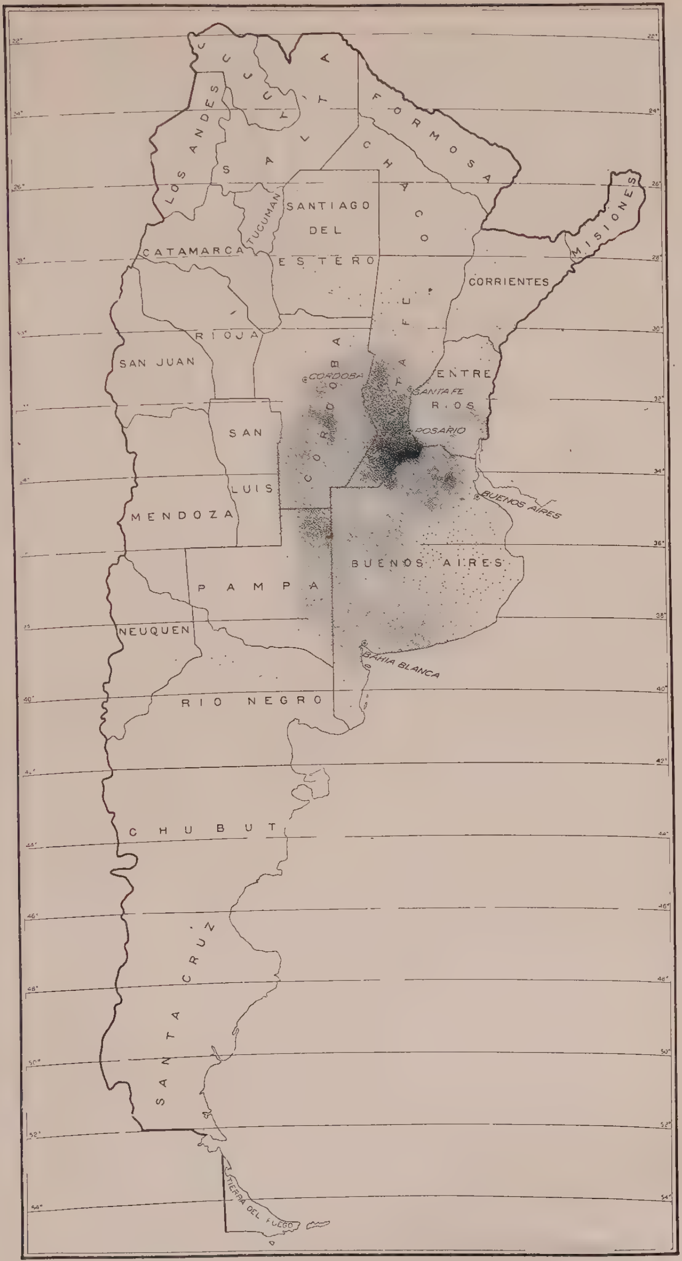
The rented farms contain from 125 to 750 acres, and usually form part of a large tract of land owned by an individual or group of individuals. Such ownership may comprise a great number of farms which are leased to "colonists," the terms of rental being a portion of the crop bagged and delivered at the country stations or a fixed rent in cash. Frequently these properties have formerly been "estancias" (ranches) and have been utilized for stock raising. However, the owners, thinking that larger profits would be derived from cereal growing, have turned agriculturists, subdividing at least a part of their holdings into farms, erecting small huts thereon, and leasing them to tenants. These subdivisions or smaller farms, which are known as "chacras," are frequently designated by number as a matter of convenience. Many farms have been utilized either for the production of corn, wheat, or flax, as the case may be, for a great many consecutive years. The farmer having no fixity of tenure and the soil being very rich in most parts, there is no incentive for him to practice mixed farming, even though he were permitted to do so. In so many cases that it is possible to generalize, he does not even grow his own vegetables and fruits, but purchases these necessities at the country store, paying for them out of the proceeds from the sale of his share of the harvest when marketed.

Sometimes the landowner will be found actively engaged in agriculture, either by exercising direct supervision over the farming operations or by employing competent farm managers who have direct charge of the work. On such properties as these there is usually available the most modern equipment for farming, and the horses, which, almost without exception, are of the finest types, are kept in the best possible condition (Pl. LXI, fig. 1). The methods employed, although peculiar to Argentina, conform to the conditions of the country and are generally attended with a very high degree of success.

THE PLANTING OF CORN.

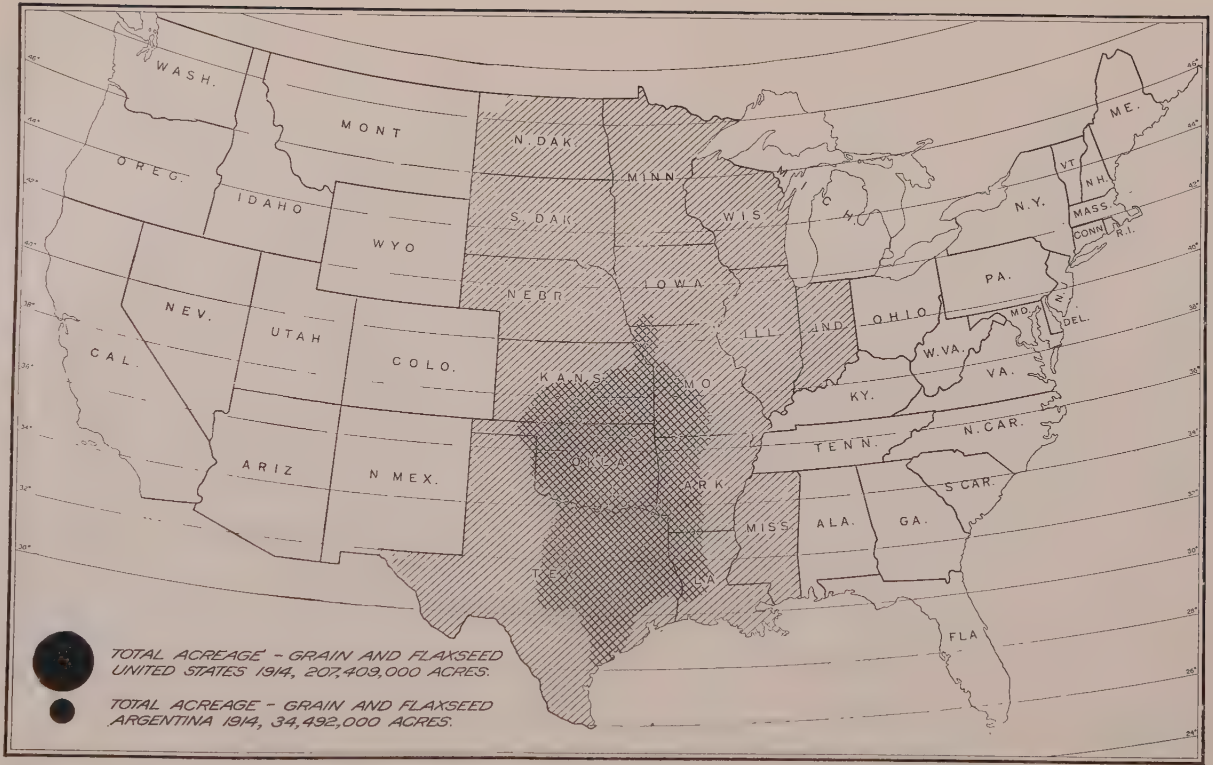
Argentina being in the Southern Hemisphere, the seasons are the reverse of those of the United States. Corn planting may be begun in the northern part of the cereal region as early as the month of August. In the central part of the corn belt the planting begins about September 15 and continues until January 1, the principal part of the planting being done between October 1 and December 15, when corn harvesting in the United States is at its height. The extremely long period of time during which corn may be planted is very advantageous to the corn growers of Argentina. Some farmers make a practice of planting at least a part of the crop early, so that replanting may be done a month or two later, if necessary. This is especially true in the region generally attacked by the locusts. These insects invade the northern part of the cereal zone in the spring, flying in immense swarms from their winter breeding grounds in the warmer sections of the north. At times during flight they are so numerous as to give the appearance of clouds and to obscure the sun from view completely. Great quantities of eggs are deposited in the ground, and as soon as the young larvæ are hatched they begin their work of destruction to growing crops. The Department of Agriculture of Argentina maintains a large organization for the purpose of fighting these pests, and as the result of their efforts thousands of acres of growing crops are saved annually which otherwise would be destroyed.

Corn is planted very largely by listers and by common planters, most of which are imported from the United States. In fact, 70 per cent of all agricultural implements imported into Argentina are manufactured in the United States. The



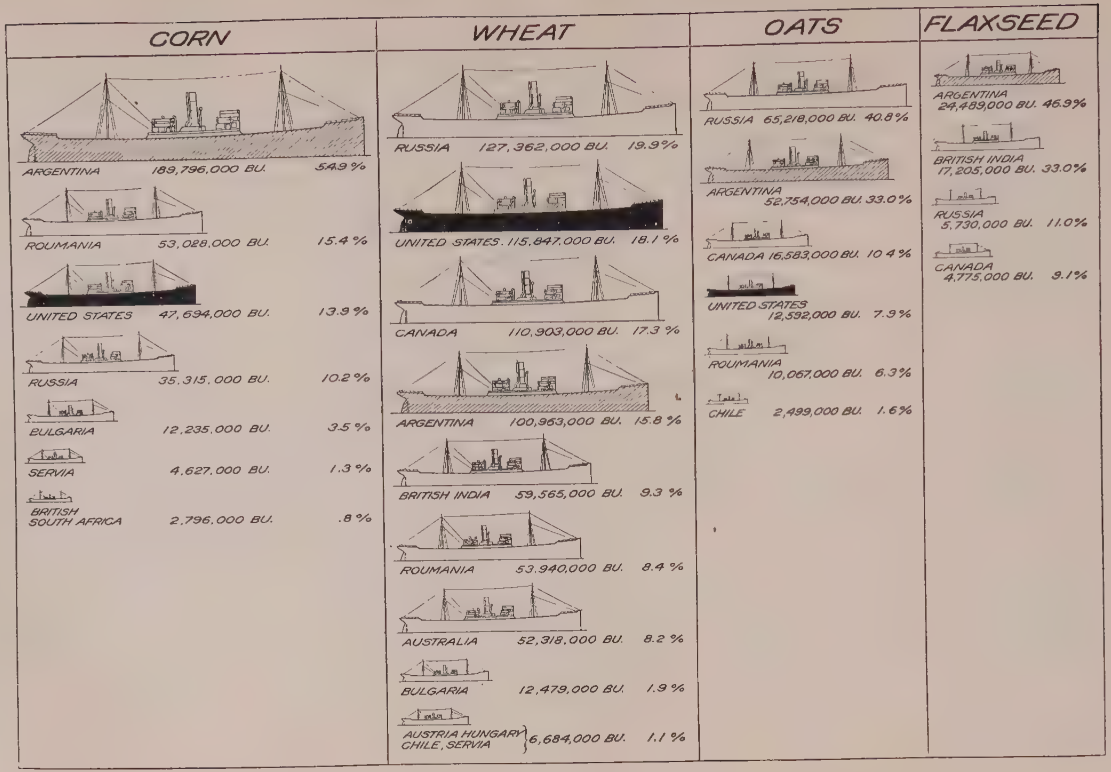
THE CEREAL ZONE OF ARGENTINA, COVERING WHEAT, CORN, FLAX, AND OATS.

Each dot represents 1,000 hectares, or approximately 2,500 acres.

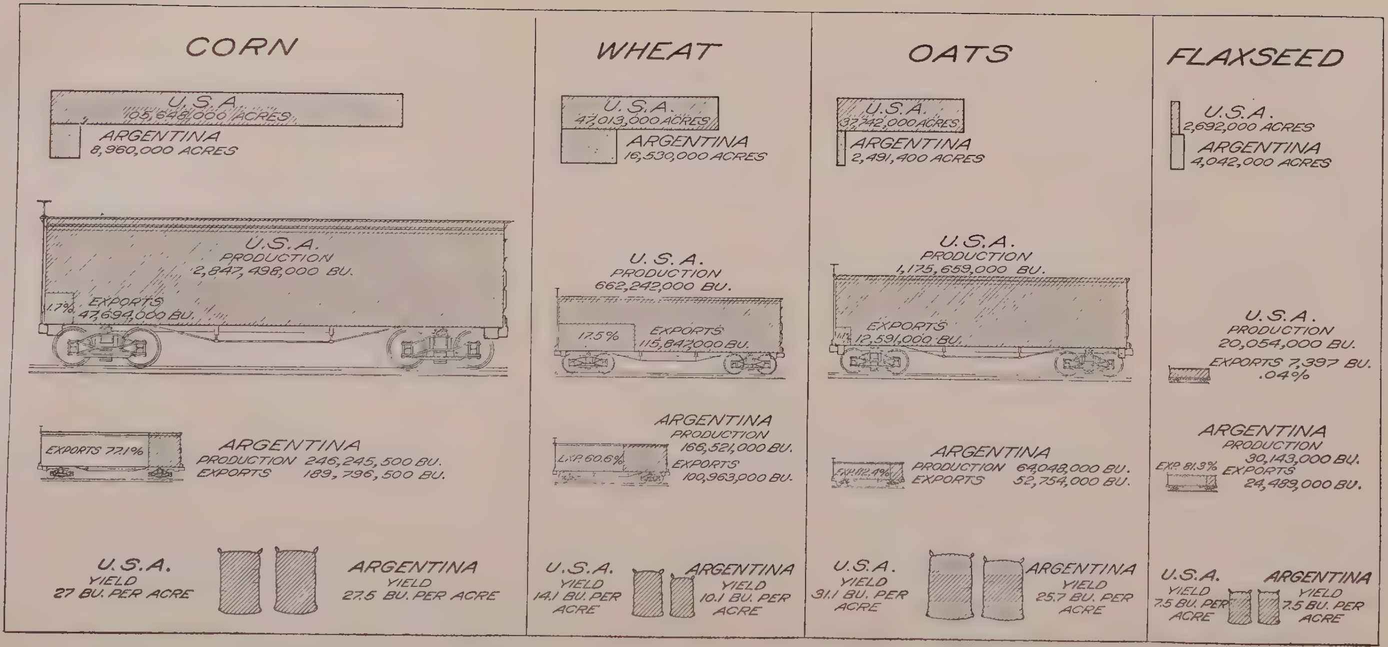


THE CEREAL ZONE OF ARGENTINA, REPRESENTED BY THE HEAVY-SHADED PORTION, PLACED IN THE CORRESPONDING LATITUDE IN THE UNITED STATES.

The light-shaded portion represents the total area of Argentina.



AVERAGE EXPORTS OF CORN, WHEAT, OATS, AND FLAXSEED OF THE PRINCIPAL SURPLUS-PRODUCING COUNTRIES DURING 1911, 1912, AND 1913.



AVERAGE ACREAGE, PRODUCTION, EXPORTS, AND YIELDS OF CORN, WHEAT, OATS, AND FLAXSEED IN THE UNITED STATES AND IN ARGENTINA FOR THE YEARS 1911, 1912, AND 1913.

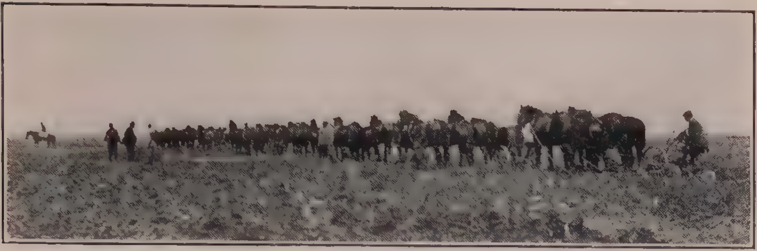


FIG. 1.—BREAKING LAND FOR CORN ON THE ESTANCIA LA CALIFORNIA, PROVINCE OF SANTA FE.

Note the splendid condition of the horses.

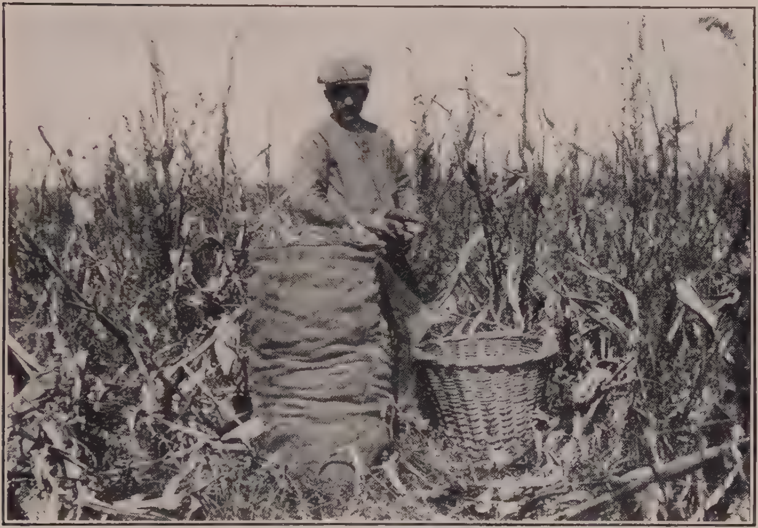


FIG. 2.—SHUCKING CORN.

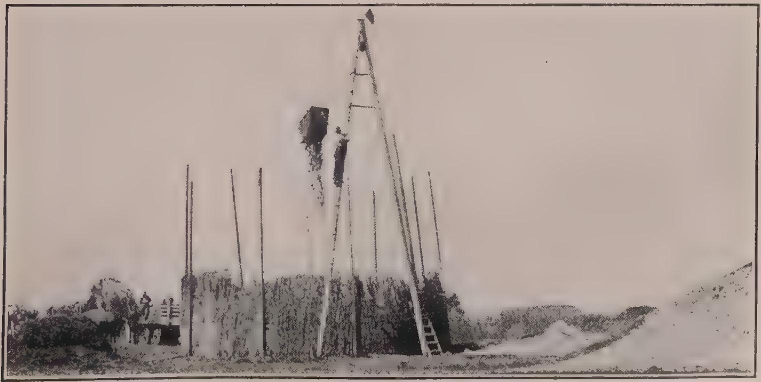


FIG. 3.—FILLING THE "TROJE" (CRIB).

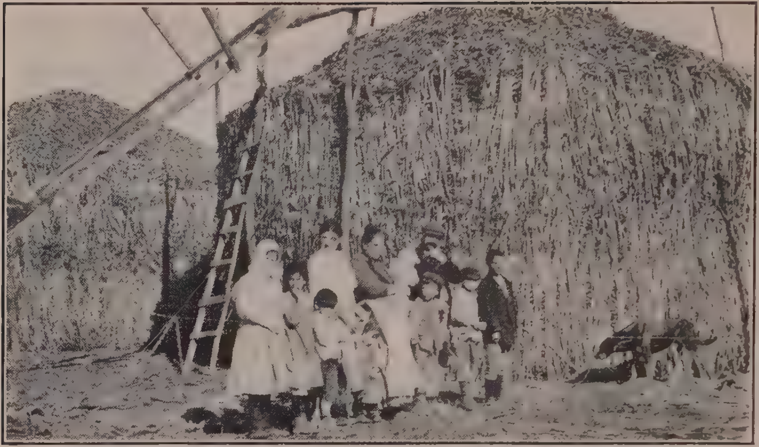


FIG. 1.—COMPLETED "TROJES," CONSTRUCTED OF CANE STALKS.

Italian farmer and family are seen in the foreground.

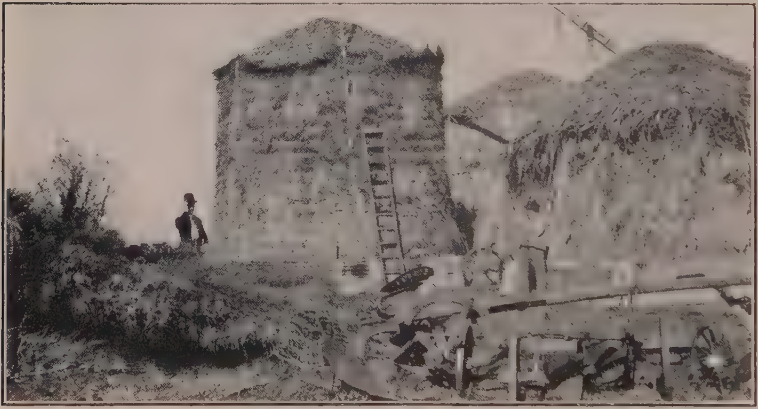


FIG. 2.—"TROJES" CONSTRUCTED OF CORNSTALKS.

Sometimes stalks and husks are used for covering.

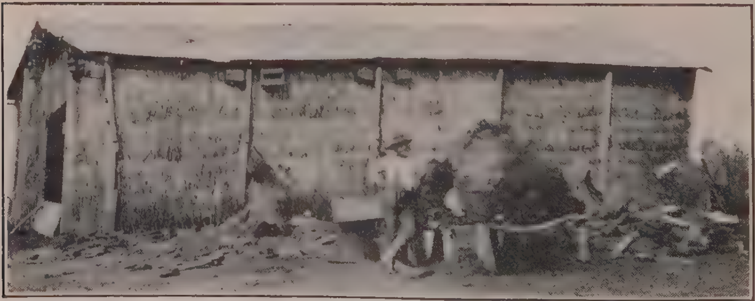


FIG. 3.—A GOOD TYPE OF CORN STORAGE CALLED "TINGLADO," PROVINCE OF BUENOS AIRES.

Note the oven in the foreground, situated about 200 feet from the house.

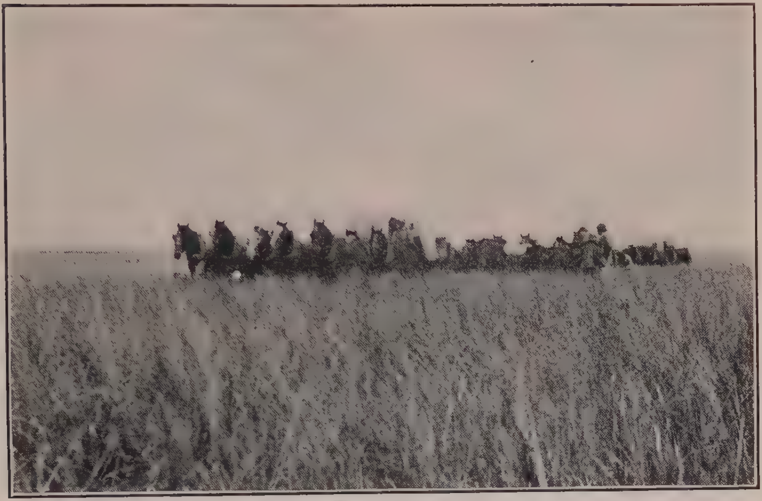


FIG. 1.—HARVESTING WHEAT WITH AUSTRALIAN COMBINED HARVESTERS AND THRASHERS.

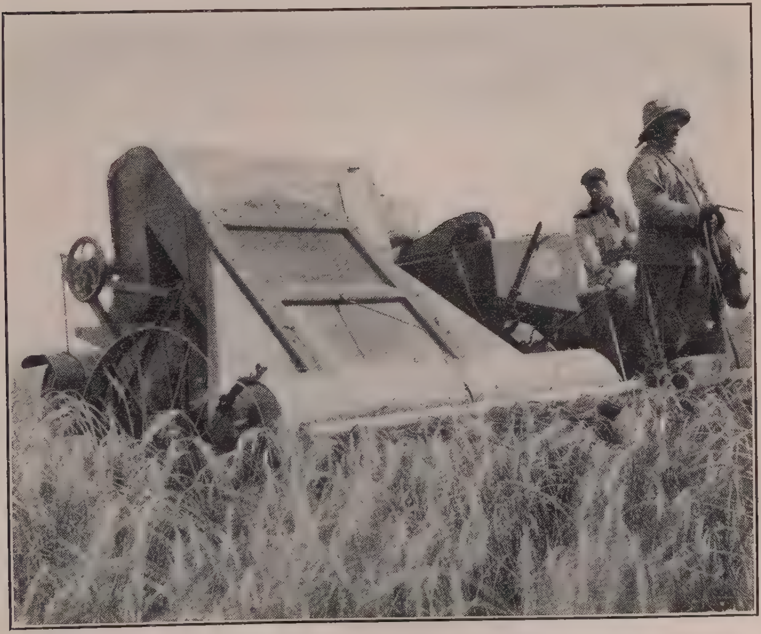


FIG. 2.—NEAR VIEW OF AUSTRALIAN COMBINED HARVESTER AND THRASHER.

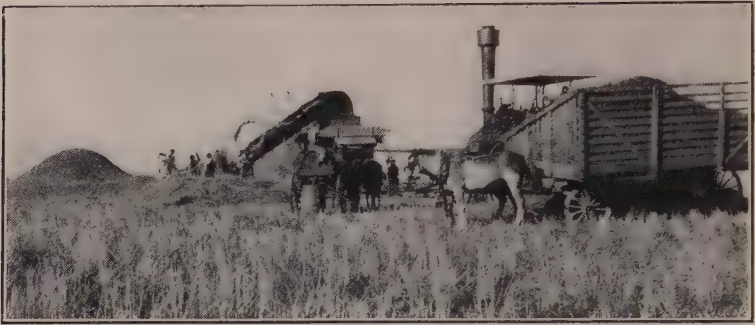


FIG. 1.—THRASHING WHEAT FROM STACKS OF HEADED GRAIN.

The straw is being used as fuel.

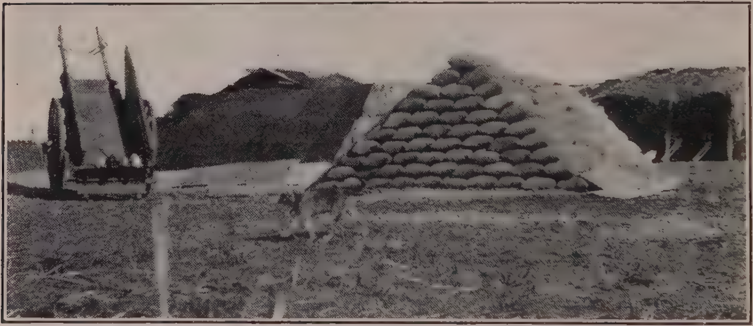


FIG. 2.—GRAIN PILED ON GROUND ON FARM PRIOR TO BEING TRANSPORTED TO STATION.

Note the type of cart; also the farmhouse and shed in the background.

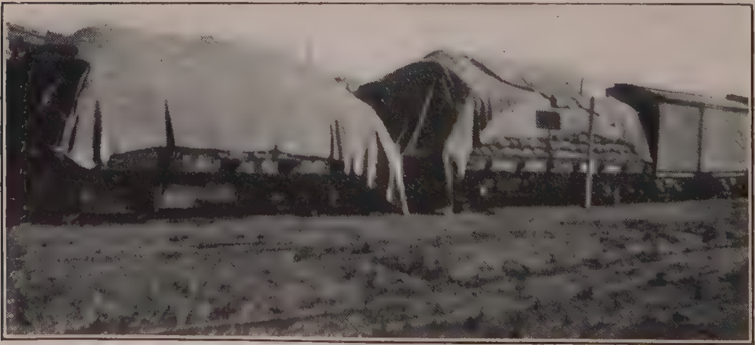


FIG. 3.—RAIL TRANSPORTATION OF GRAIN IS EFFECTED BY MEANS OF BOTH FLAT AND BOX CARS.

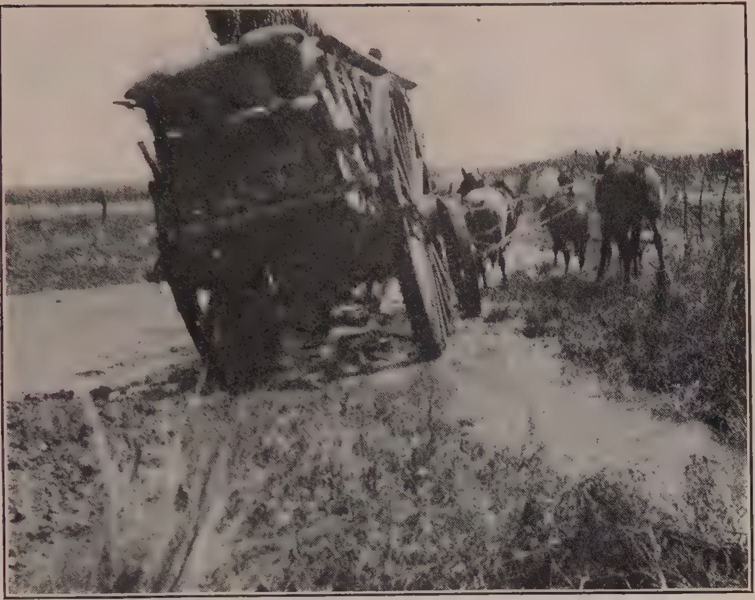


FIG. 1.—HAULING GRAIN TO RAILROAD STATION.

The roads at times are impassable.

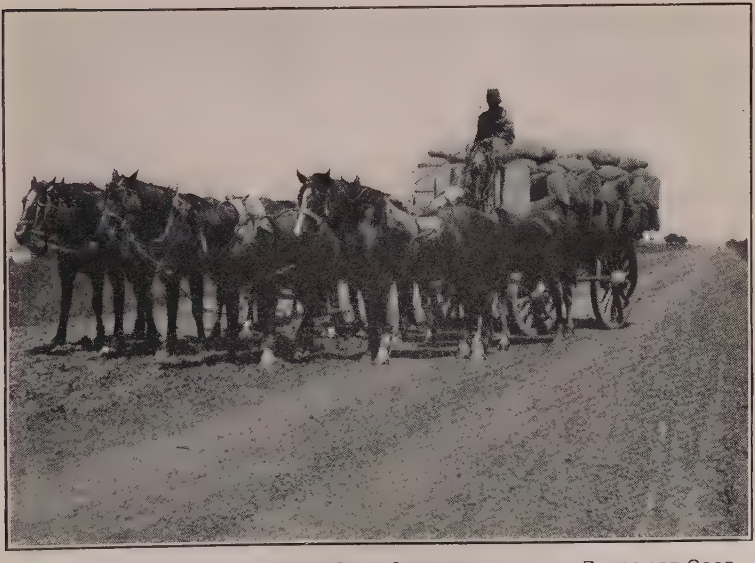


FIG. 2.—TYPE OF WAGON USED IN SOME SECTIONS WHEN THE ROADS ARE GOOD.

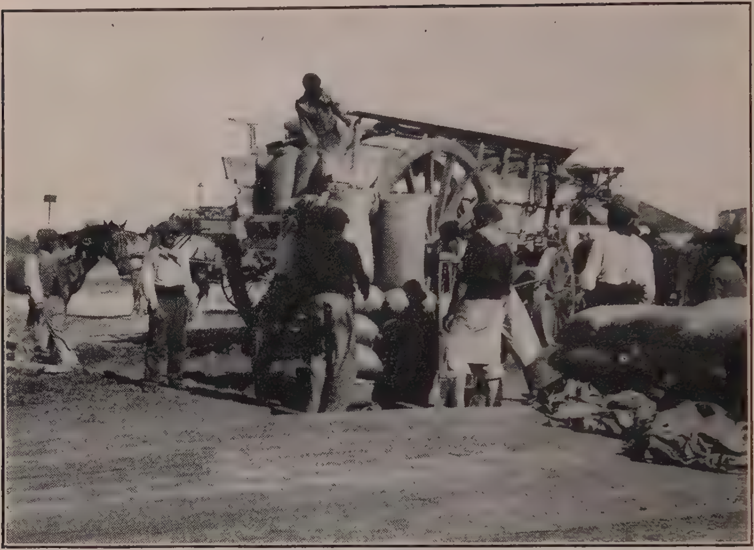


FIG. 1.—RECEIVING AND WEIGHING GRAIN AT A COUNTRY STATION.

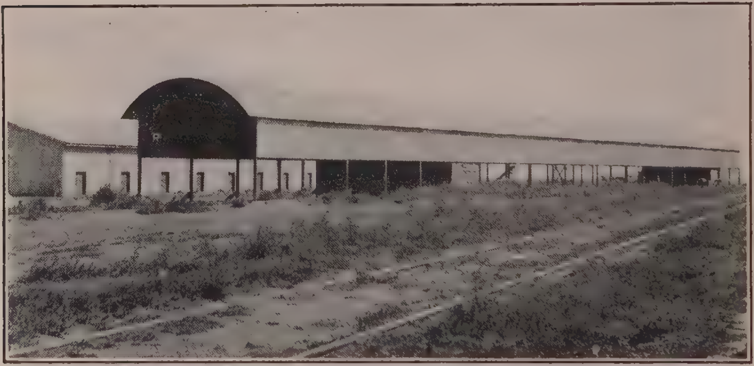


FIG. 2.—SHEDS AND WAREHOUSES FOR THE STORAGE OF GRAIN AT A COUNTRY STATION.

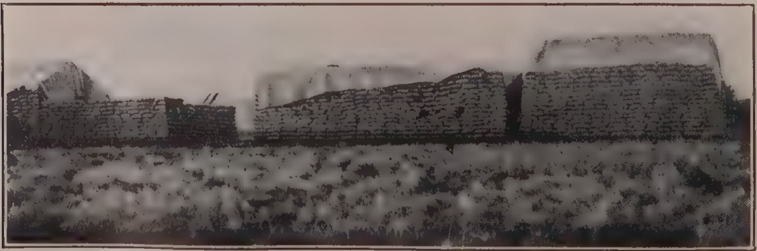


FIG. 3.—GRAIN PILED ALONG RAILROAD TRACKS AT A COUNTRY STATION PRIOR TO BEING SHIPPED TO THE TERMINAL MARKET.

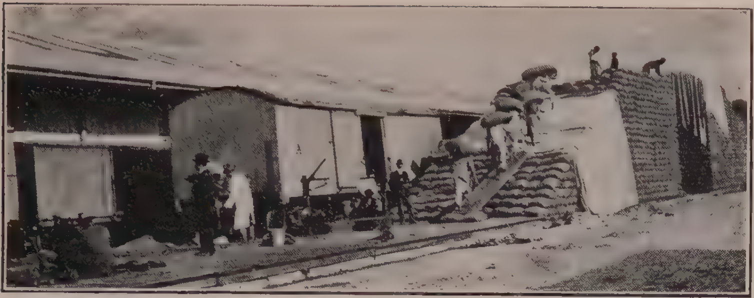


FIG. 1.—STORING GRAIN OUTSIDE OF WAREHOUSES AT A TERMINAL MARKET TO AWAIT SHIPMENT TO FOREIGN COUNTRIES.

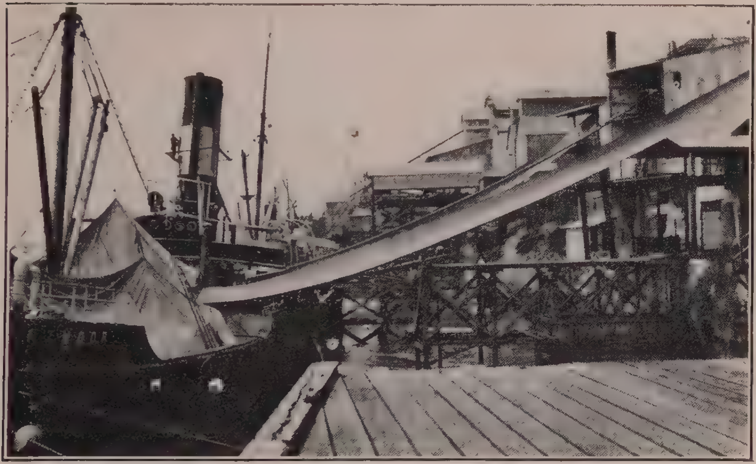


FIG. 2.—LOADING BAGGED GRAIN INTO VESSELS FROM WAREHOUSES AT ROSARIO.
The "canaletas" (chutes) and hatchways are covered with canvas during rainy weather.

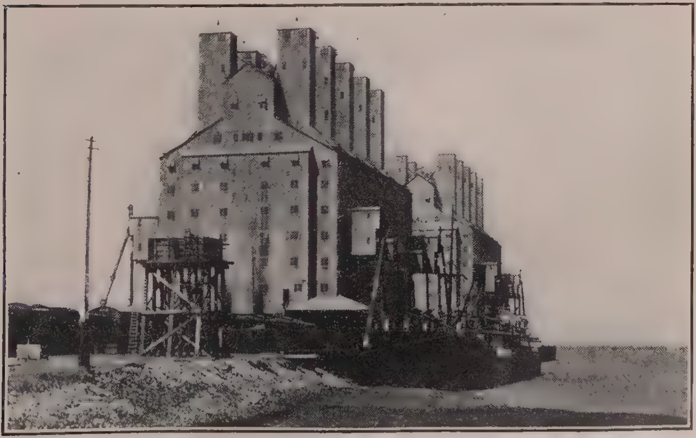


FIG. 3.—GRAIN ELEVATORS AT BAHIA BLANCA.

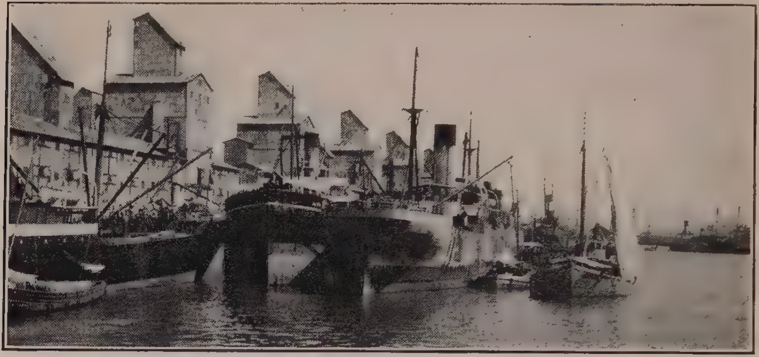


FIG. 1.—GRAIN ELEVATORS AT BUENOS AIRES.

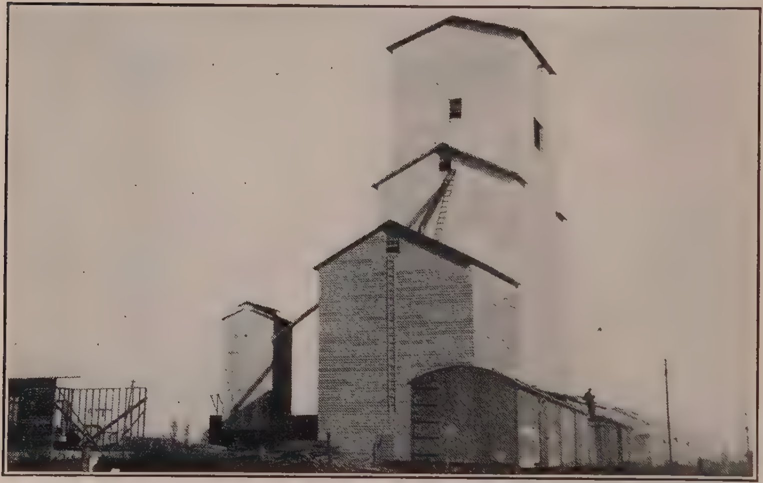


FIG. 2.—COUNTRY GRAIN ELEVATOR RECENTLY CONSTRUCTED IN ARGENTINA.

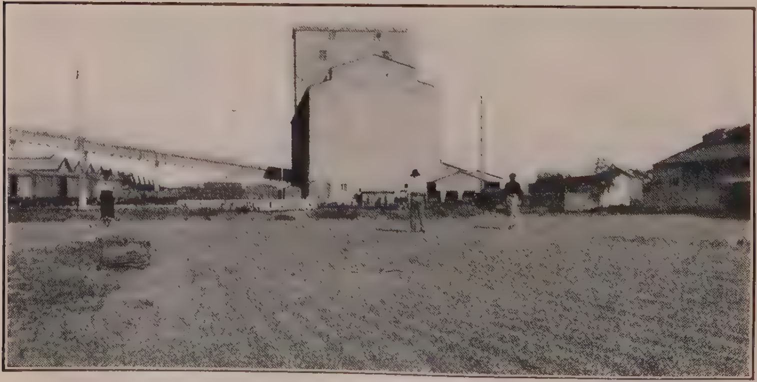


FIG. 3.—AN ELEVATOR AT ROSARIO, SHOWING LABORERS IN THE FOREGROUND STIRRING DAMP GRAIN BY WALKING THROUGH IT.

corn is planted in rows. In the majority of cases the rows are from 25 to 30 inches apart, but sometimes the distance between the rows is reduced to 20 inches. The hills in the rows are from 12 to 24 inches apart. Cultivation when practiced can be done only one way, as corn is seldom planted in checkrows.

CORN HARVESTING AND STORING.

The time required for corn to mature varies considerably with the different varieties and with the section of the country, but generally from 135 to 160 days must be allowed. The harvesting season may be said to be at its height in April and May. Corn in Argentina is shucked from the standing stalks in the field and thrown into baskets, which the shuckers move from place to place as the work progresses. Each basket, when filled, is carried to some convenient point, where the corn is emptied into sacks (Pl. LXI, fig. 2). A number of these sacks are placed together in the field and are later loaded on a wagon and hauled to the "troje" (crib). The trojes are built by placing poles in the ground in the form of a circle. Wires are then strung around on the inside of the poles to hold the corn or cane stalks of which the walls are constructed, as the filling of the troje progresses. These stalks are usually not fastened to the wires, but are held in place by the corn. One method of filling the trojes is shown in Plate LXI, figure 3. The corn in the sacks as hauled from the field is emptied into a box placed alongside of the wagon. This box, filled with corn, is then drawn up over the top of the troje on a wire cable, where it is dumped into the inclosure. Plate LXII, figure 1, shows a completed troje made from cane stalks. Very frequently a small patch of cane is grown for that purpose. Sometimes the trojes are covered with canvas or zinc sheeting, but usually there is no covering at all unless it be of cornstalks and husks or other similar material, as is illustrated in Plate LXII, figure 2.

In the northern part of the Province of Buenos Aires, where many farmers own the land they cultivate, there is to be found a somewhat better type of crib called "tinglado," which is built in a rectangular form, the sides and ends being constructed of corn or cane stalks, but with a good roof of zinc sheeting (Pl. LXII, fig. 3). In a wet season large quantities of maize spoil in the trojes because there is not the proper protection for the grain. During an inspection trip made for the Minister of the Department of Agriculture of Argentina in May and June, 1914, it was found that large quantities of maize stored in uncovered trojes was unfit for market except at very great discounts, it being badly damaged by having molded and fermented, while the maize stored in the tinglados was in very good condition. The average moisture content of the corn in the different types of storage was as follows:

	Per cent.
In trojes without covers	22.0
In trojes with covers	18.6
In tinglados	18.1
In field unshucked	21.1

The weather conditions during 1914 were perhaps as bad as ever experienced in the country, an excessive amount of rain having fallen during the corn-gathering season. The warm climate of Argentina causes the grain to mold very soon, once it becomes damp and wet. The government, however, is carrying on an extensive educational campaign to get the farmers to store their maize in well-covered trojes.

CLASSES OF CORN.

Flint corn is grown almost exclusively, although several prominent agriculturists are growing some of the more important varieties of American dent corn, mostly for feeding purposes, with considerable success. The chief objection to the growing of dent corn seems to come from the exporters, who claim that it can not be produced sufficiently dry to carry safely to Europe. While perhaps there is not sufficient evidence that dent corn can be produced to better advantage in Argentina than flint corn, it is believed, according to the best information available, that, with the selection of the best varieties and with the proper care in the handling of the crop, dent corn with a sufficiently low moisture content to carry safely through the Tropics can be raised. It is probable that with the development of the hog-raising industry, which has heretofore been neglected, a greater quantity of dent corn will be produced.

Some of the more common varieties and types of corn grown in Argentina are shown in the frontispiece of this volume, where a comparison is made with Boone County White and Brewer's Yellow Dent corn, grown in the United States. The ears of the flint corn represented in this illustration were secured from a lot of corn placed on exhibition at a rural show held in Argentina. The two ears representing the corn grown in the United States were selected from samples furnished by the Office of Corn Investigations of the United States Department of Agriculture.

The flint corn generally produced may be divided into two kinds, white and yellow. The white is the least grown, and only comparatively small quantities are found in commerce. Of the white corn the type known as "morocho" is mostly grown. The kernels are smooth, flinty, and considerably smaller than the kernels of the white dent corn of the United States. Another type of white corn is known as "perla," the ears and kernels of which are only about half the size of the "morocho." The yellow corn, of which there are several types, is by far the most important in the commerce of Argentina. The variety known as "maíz de harina" is a very starchy corn of a light-yellow color, or, as the name implies, corn for flour. The ears and kernels are larger than those of the true flint corns. This variety is grown only in small quantities in the extreme northern part of the grain belt, is used chiefly for making meal, and is consumed locally, little or none being found in commerce. The most common varieties of yellow corn are "Canario," "Húngaro," "Cuarentón," "Lombardo," and "Piamontés." These varieties constitute by far the greatest part of the corn exported. The "maíz polenta" is a Piedmontese variety and takes its name from polenta, a kind of mush or porridge which is eaten extensively by the Italians. After a few years this variety degenerates, losing its original red color and becomes nearly yellow. The "maíz cuarentón," the kernels of which are very small and flat, presents a very fine appearance, especially when shelled, and frequently commands a premium over the ordinary yellow corn in some foreign markets in that the small kernels make it especially desirable for poultry and pigeon food.

THE SEEDING OF WHEAT, OATS, AND FLAX.

Wheat is sown as early as May 15 and as late as September 15. The greatest quantity is seeded during July and August, which is the middle of the Argentine winter. In the center of the wheat belt the harvest begins usually in December, depending on the time of sowing and on the weather conditions prevailing throughout the growing season. During the crop year of 1914–15 the harvest did not begin until January, and in some parts not until February. This, however, was an exceptionally late season.

The flaxseed grown in the northern part of the cereal zone is usually harvested a little earlier than the main part of the oats or wheat crops. The harvesting of oats takes place at about the same period as wheat, the seeding being done in May, June, July, and August.

HARVESTING AND THRASHING.

The harvesting of wheat is accomplished by means of headers, binders, and Australian combined harvesters and thrashers. The latter are sometimes called "stripper harvesters" from the fact that the heads are stripped from the stalks without cutting the plants. The machine is equipped with a comb having fingers which are set just far enough apart to permit the plants to be drawn through until the heads are reached, at which time the latter are stripped from the straw by the aid of beaters revolving within a drum situated above the rear of the comb. While passing through the machine the wheat is separated from the heads, cleaned, and finally deposited in a box having a capacity of several bushels, which is attached to the machine. From this box the wheat is sacked and left at convenient points in the field. Some machines are equipped for sacking the grain as it is thrashed, the bags being deposited in the field as they are filled. From 6 to 8 horses are generally used to draw the machine, and the operation may, under favorable conditions, be accomplished by one man, although at times an additional man or boy is required to assist in driving the horses. Where several machines are employed in one field, an extra man or two is required for sewing and piling the bags of grain. While there are many disadvantages connected with the use of the "stripper harvester," the great rapidity with which the work is done and the saving in cost of labor in gathering the crop are greatly in its favor when the conditions are right for its use. The essentials for the successful operation of this type of harvester are that the land should be reasonably level, the crop standing up well in the field, and the grain thoroughly ripe and dry. As soon as the crop reaches the proper stage there is a necessity of completing the harvest as quickly as possible in order to prevent excessive loss due to the shattering of the grain. An illustration of this type of harvester is shown in Plate LXIII, figures 1 and 2. Grain harvested with a binder is usually thrashed from the shocks. Headed grain is stacked, generally without any covering (Pl. LXIV, fig. 1). Much damage is sometimes done to the grain in stacks. This was the case in 1915, when it was practically impossible to move the thrashing outfits, due to the extremely bad condition of the roads, so that much of the grain remained in the fields for several months before thrashing. According to the Department of Agriculture of Argentina, there were many stacks unthrashed on May 26, a very unusual occurrence, as generally the thrashing is completed by the last of February.

CLASSES, VARIETIES, AND TYPES OF WHEAT.

Although the wheats of Argentina are generally classed as soft wheats they more nearly resemble our varieties of hard red winter. The principal varieties are Barletta, Ruso, Italiano, Frances, Rieti, Tuzela, and Saldomé. These varieties have been grown for many years, and it is an unfortunate fact that very little attention has been paid to the selection of seed wheat, so that the wheats have become very badly mixed, it being almost impossible to find pure types. Barletta is practically the only variety recognized in commerce, the others being shipped simply as wheat or "trigo de pan," which means wheat for bread. The "Bolsa" of Rosario has designated a special type of wheat, as "Rosafé," which is simply a commercial name given to the better wheats grown in the Rosario district and sold to Europe under that name. A number of varieties have been mixed and grown together in certain sections and erroneously called "Hibrido" (hybrid). The cultivation of this wheat has increased quite rapidly, some agriculturists believing that they had a new variety. This wheat is also called "Pampa," from the fact that it is grown extensively in the Territory of La Pampa Central. Another variety grown only in small quantities, mainly in the northern part of the cereal zone and in the Province of San Juan, is known as "Candeal." This wheat, while probably a durum, more nearly resembles the wheats known commercially in the United States as Wild Goose wheat. The Candeal wheat is used almost exclusively in the manufacture of edible pastes, and very little of this class of wheat ever reaches the export markets.

MARKETING.

After shelling or thrashing, the grain is placed in bags and hauled directly to the railroad station, or it may be piled on the ground to await such transportation (Pl. LXIV, fig. 2). Many farmers do not haul their own grain to market, but hire regular teamsters to perform this service for a certain price per 100 kilos (220.5 pounds), the cost varying according to the length of haul and the condition of the roads. The prevailing tariff for hauling wheat is from 1$\frac{3}{4}$ cents to 5$\frac{3}{4}$ cents per bushel for each league. Generally, the grain is transported to market in carts and wagons having immense wheels and drawn by horses or oxen. Anywhere from 8 to 16 horses are hitched to one wagon, pulling from every available place where a hook or ring may be fastened. This type of wagon is said to be necessary, owing to the frequently bad condition of the roads (Pl. LXV, fig. 1). During the periods of dry weather the roads usually become fairly good, and in such cases it is possible to use a wagon with smaller wheels. Such a wagon is shown in Plate LXV, figure 2.

On arrival at the station, the grain is weighed on a small platform scale and inspected and received by the local buyer, after which it is stored in a warehouse or shed or piled alongside the railroad tracks to await shipment to the terminal market (Pl. LXVI, figs. 1, 2, and 3).

The only means of drying damp grain which has begun to show signs of deterioration is to spread it out on the floor of the warehouse or on a canvas placed on the ground outside the warehouse, as commercial grain driers are not yet available.

In transporting grain from country stations to the export markets both box cars and flat cars are utilized. The latter when loaded with grain are covered with tarpaulins, as shown in Plate LXIV, figure 3. Very little grain in Argentina is hauled by rail for a distance greater than 300 miles. The freight tariffs for hauling grain on the railroads are based on the metric ton of 2,205 pounds. The information given in the table herewith will give an idea of the rates in force in 1914 on one of the principal lines which traverses the corn belt extensively.

Examples of railroad freight rates on corn in Argentina.

Approximate distance from shipping point to port.	Rate in cents (U. S.) per 100 pounds.	Approximate distance from shipping point to port.	Rate in cents (U. S.) per 100 pounds.
Miles.		*Miles.*	
10	3.87	252	13.26
48	5.90	305	14.65
98	8.52	355	15.42
127	9.98	403	16.17
148	10.52	470	17.35
174	11.22	502	17.87
200	11.87	575	19.01

Grain received at the export market may be loaded directly aboard ship by means of electric elevators leading from the car door to the hatchway or carried aboard by "peones" (laborers). If the grain is to be shipped in bulk, the bags are opened at the hatchway. If shipment is not made immediately, the grain is taken from the cars and stored in warehouses or piled outside (Pl. LXVII, fig. 1). At many places on the River Parana, where the banks are high above the water, the loading is done by means of "canaletas" (chutes), leading from the warehouses to the ship's deck. During rainy or damp weather the chutes and hatchways are covered with canvas to prevent the bags from becoming wet (Pl. LXVII, fig. 2).

GRAIN STORAGE FACILITIES.

While there are a few terminal grain elevators located at Rosario, Buenos Aires, and Bahia Blanca, only a comparatively small amount of grain is handled through this type of storage except at Bahia Blanca (Pl. LXVII, fig. 3), where the capacity of the elevators is much greater than at Rosario or at Buenos Aires (Pl. LXVIII, fig. 1). The elevator storage capacity for the whole country, all of which is located in the ports, possibly would not exceed 8,000,000 bushels. The total grain storage available, including sheds and warehouses throughout the country, is approximately 211,000,000 bushels, of which 16,800,000 is located at the export points.

A number of projects for the construction of country and terminal elevators have been discussed. Recently a project was submitted to the National Congress, which calls for the construction of a system of public elevators. At the present time there are possibly not more than three or four country elevators in the whole of the grain belt (Pl. LXVIII, fig. 2), and these have been built only within the past few years. This is a question of great importance to the Argentine producer, as without elevators no facilities are available for the proper cleaning of grain or for the conditioning and handling of damp or deteriorated grain. The heavy discounts assessed against damp grain are largely due to the costly and impracticable method of drying by spreading the grain out on the ground (Pl. LXVIII, fig. 3). It would be impossible to give an accurate statement of the losses to the producers caused by the system of handling grain in bags instead of the bulk system, as employed in the United States and Canada. That the bag system is expensive is fully realized when it is considered that the sacks alone cost the producer from 12 to 15 cents each, and to this must be added the cost of handling, which is necessarily greater than if handled through elevators in bulk.

CLASSIFICATION, INSPECTION, AND GRAIN CONTRACTS.

In Argentina there is no system of grading grain such as is known in the United States. Practically all of the export grain is handled by five or six large export firms, some of which have their agents in the principal grain-shipping stations, who buy direct from farmers, local dealers, and commission merchants.

The "Cámara Gremial de Cereales" of the commercial organization of Buenos Aires known as the "Bolsa de Comercio" has formulated a contract for the use of its members in the buying and selling of grain. According to the general rules governing this contract, wheat is bought and sold to be sound, dry, and clean; to have a certain specific weight, the standard being 80 kilos per hectoliter, or approximately 62.2 pounds per Winchester bushel. Deliveries may be made of wheat weighing 5 pounds less than standard or other specified weight, with corresponding discounts. Likewise, a premium is given if the wheat weighs more than that specified in the contract.

Flaxseed sales and purchases are made on the basis of 4 per cent foreign material, with a tolerance up to 8 per cent. The Cámara Gremial makes up a monthly average of the samples received, which forms the basis of quality.

Oats are sold on the basis of average quality, with an allowance of 6 per cent of black oats, 3 per cent of foreign material and 3 per cent of barley being considered as the basis for foreign material, other grains, etc. Oats containing a maximum of 5 per cent of foreign material, 5 per cent of barley, and 10 per cent of black oats are deliverable, with corresponding discounts. When the specific weight is declared in the contract, a maximum tolerance, equivalent to approximately 3.1 pounds per bushel, is allowed, with corresponding discounts. The usual standard for specific weight is equivalent to 36½ pounds per Winchester bushel.

Maize is sold on the basis of the terms sound, dry, and clean, and in practice the following additional classifications are usually made:

(1) Sound, dry, and clean, according to season.
(2) "Fresco," i. e., damp maize, but cool. The usual discount is 7 cents per bushel.
(3) "Tale Quale" includes corn which may be very damp, but free of heat and badly mold-damaged grains. The usual discount is 10¾ cents per bushel.

Grain is sold to Europe chiefly on the La Plata rye terms contract, which provides that the seller shall guarantee the condition of the grain on arrival in Europe. Differences arising out of the contract are arbitrated in Europe, usually in London. Another form of La Plata contract is known as the "Tale Quale contract," which stipulates that shipment must be made in good condition but "tale quale" as regards condition on arrival. The quality of the grain shipped on either contract must be a fair average of the season's shipments or in accordance with sealed samples, taken at the time and place of shipment.

WAREHOUSE CERTIFICATES.

In October, 1914, a national law, known as the law of warrants and certificates of deposit, was enacted. By the provisions of this law certificates of deposit and warrants may be issued by duly authorized warehousemen, provided that they have previously conformed to certain specified conditions as established by the Government for the grain which they have taken in store. Such certificates of deposits and warrants are negotiable and may be discounted at the banks or by the concerns issuing the certificates. This law, which applies to practically all products which are stored, promises to be of immense benefit in the commercial handling of grain.

IMPROVEMENT AND MANAGEMENT OF NATIVE PASTURES IN THE WEST.

(Plates LXIX–LXXII.)

By James T. Jardine, *Inspector of Grazing, U. S. Forest Service.*

THE CALL FOR PASTURE.

A PROBLEM of steadily increasing importance to almost every owner of live stock in the range States is the problem of improving and efficiently managing native pasture lands. Indirectly, but not less surely, it affects the meat and wool industries and every consumer of their products.

For many years in the West there was room for the expansion of the range stock industry. Large areas of unused grazing lands awaited the coming of the stockman. Only part of the pasturage which nature had provided in such seeming abundance was utilized by the herds which grazed in the western country. But this is no longer the case. From the desert to the line of perpetual snow there is now little unused range. Grazing, too, has in most cases been unrestricted, with consequent injury to the forage growth. This has gone on until it is evident that, to maintain the production of even the present number of live stock under the range industry, run-down ranges must be improved and an efficient system of native pasture management worked out. In short, it will be necessary not only to build up the range lands, but to keep them at their maximum carrying capacity once that is done. There is urgent call for such measures now, but this call will become steadily stronger as settlement advances into the stock country and range pasture is needed for the farm herd to supplement the pasturage and feed crops produced on the cultivated land.

A very few figures will show the magnitude of the pasture problem west of the Mississippi. There practically all of the land in farms classed by the census as unimproved, some 252,000,000 acres, or more than 60 per cent of all such land in the United States, is of value for grazing and in use by stock. Of the public lands, some 110,000,000 acres within the National Forests carry live stock, mainly as summer range. Outside the National Forests, practically all the public land, not less than 300,000,000 acres, is used for grazing purposes.

All told, then, the problem of improving and maintaining native pastures in the range States extends, in a broad sense, to something over 660,000,000 acres of land—nearly one and one-half times the area in the United States that is cultivated and cropped.

CONDITION OF NATIVE PASTURE LANDS IN THE WEST.

What has taken place, and is still taking place, on many of the privately owned native pastures is a gradual but steady decline in their carrying capacity. Data collected by the Kansas Agricultural Experiment Station show that in that State in 1910 the average area of grazing land required per steer was 3.80 acres and in 1914, 6.55 acres, an increase of 72 per cent. Along with this go a corresponding increase of 31 per cent in the pasture rent per steer and a decrease of 24 per cent in the income per acre. Kansas has 2 acres of pasture land to every 3 acres cultivated and cropped. Though largely unsuited for cultivation, these pasture lands have reached a total valuation of approximately $400,000,000 for grazing purposes. This figure gives some idea of how important, from a money standpoint, is the problem of bringing the lands back to their former degree of usefulness and keeping them there.

What is true of Kansas is in all probability true of other western States where large areas of privately owned pasture lands have been in more or less continuous use for spring and summer grazing. This would not necessarily be the case, however, with private pastures in connection with farms in the range States, where the unimproved part of the farm or ranch is used in late fall, winter, and a short time in spring to supplement public domain and National Forest range, with the result that the stock are off the private pastures during a good portion of the growing season and the vegetation has a chance to mature and so to stand heavy grazing in fall and winter. Where this is so, the unprotected public lands must be looked to for a comparison with the private pastures which are used throughout the season each year.

The average carrying capacity of the 300,000,000 acres of public lands outside of the National Forests is to-day probably 25 per cent below what it was originally. That this estimate is conservative can be told by the degree of improvement in forage crops and increase in carrying capacity which follows restricted grazing or total protection of the range.

The lands used for grazing purposes within National Forests are gradually being brought back to something like their original condition by the grazing management which has been developed during the past 10 years. Between 1907 and 1914 the average acreage per animal was reduced about 14 per cent. As a matter of fact, the average increase in carrying capacity of ranges which were run down in 1907 may be set at not less than 30 per cent. In many instances the lands now bear several times the amount of vegetation which existed when they were first placed under management.

Decrease or increase in carrying capacity is the direct but not the only measure of deterioration or improvement in a pasture. The character and amount of vegetation has a great deal to do with the producing capacity of the lands and with the control of mud-laden flood waters which mean damage, or even destruction, to lands and improvements further along the drainage. Evidence of such damage, varying from shoe-string rills to gullies and large washes, is common enough, not only on the unprotected public lands, but on the rolling and hilly privately owned pastures. With decrease in the cover of vegetation, rapid run-off and erosion is increased, and the surface drainage carries off not only the much-needed moisture but the soil as well. While the damage thus brought about is generally realized in a vague way, the tendency seems to be to underestimate it, just as it is the tendency to neglect the pasture lands as things which can take care of themselves.

CAUSES OF PASTURE DETERIORATION.

Overstocking and premature grazing go together as the most direct causes of deterioration in western pastures. Lack of well-distributed watering places and unnecessary or improper handling of the stock, though less important than overstocking and premature grazing, often operate to bring about a marked reduction in carrying capacity.

OVERSTOCKING.

Upon the public lands outside of the National Forests, and upon the National Forest lands before they were placed under management, the only limit to the number of stock grazed was usually the number available. No consideration was given to the matter of carrying capacity. This same practice continued to some extent even after the lands passed to private ownership and were placed under fence. The more common practice on private lands, however, has been to put on all the stock that the range would carry and turn them off in fair to good condition, in the belief that if the stock came off in satisfactory shape the range was not overstocked or injured. This is true, provided the season of grazing is limited so as to give the vegetation a chance to do more than merely produce a few leaves, which are eaten as soon as they are long enough to crop. It is not true if the stock are turned on the pasture lands as soon as there is enough green feed for them to live on and kept there, to the apparent capacity of the pasture, as long as they can remain in fairly good condition. The fact that this has been the method followed accounts for the decrease in carrying capacity of many private pastures, when the owners believed that the lands were not overstocked. Animals which are allowed to graze the green feed of the choice forage plants nearly as fast as it grows may, for the time being, get enough to eat, but to rob the plants continuously of this foliage robs them also of their laboratory for manufacturing plant food, and they are gradually starved out of existence. The change, perhaps, is not noticeable during any one year, but in a period of 5 or more years the better forage plants are greatly reduced, if not killed out, and their place taken by less desirable grasses and weeds.

The condition of the stock, therefore, is not in itself a safe way to judge whether a range is overstocked or not. It works well enough on winter pastures which have been protected during the growing season, and it works moderately well on National Forest ranges where the stock are not put on until the vegetation is well along in its short period of growth. It can be used also on spring and fall pastures where the stock are taken off early in the growing season and put back after the vegetation has matured. It does not work, however, where the stock are on the pasture to its apparent capacity during all or the greater part of the growing period of the main forage plants. Where this is the case the number of stock must be reduced materially below the number which can be kept in good condition, if the pasture is to be kept up.

PREMATURE GRAZING.

Until a few years ago premature grazing was generally understood to mean grazing in early spring, while the ground was still soft enough to make it certain that a great deal of the vegetation would be destroyed or badly injured by trampling. It is now realized that this is only a limited view. If the maximum stand of forage plants which are naturally dominant on a pasture is to be maintained under annual grazing, it would seem that the land should be grazed only after approximately the time of year when these plants mature their seeds. This, however, is not practicable. Therefore, to approach it as nearly as possible consistent with the whole plan of live stock, farm, and pasture management is the problem to be worked out. When the season of grazing that will give the vegetation the greatest chance to grow, consistent with the profitable handling of the stock, is decided upon, then, and not until then, can the number of stock a given pasture will carry be consistently estimated. It should be determined finally by careful observation of the range, not the stock, over a period of from 3 to 5 years.

WATERING PLACES.

Lack of well-distributed watering places, each with ample water for the stock which may drift to it, results in overgrazing and excessive trampling around the watering places which do exist. The area of pasture injured in this way will depend upon the distance between water and upon topography. At best there will be slight damage, especially in cattle pastures. In extreme cases observed on cattle range in comparatively level country the denudation or material decrease in vegetation gradually extends outward from the water a distance of at least 6 miles. On many of the smaller private pastures decrease in carrying capacity due to this cause may seem negligible. It operates, however, to reduce the average productiveness of the whole pasture, just as small uncultivated spots bring down the average yield of a cultivated field, and efficient management must take it into account.

WHAT IS BEING DONE TO IMPROVE NATIVE PASTURE LAND.

If run-down pastures or ranges are to be brought up to their original or maximum productiveness, they must, of course, be seeded to forage plants. This must be done either artificially with seed available on the market, or by managing the pastures so they will reseed themselves with the better species of existing native vegetation. If artificial seeding were economically practicable, as it is in the case of cultivated lands, the depletion of pastures would be a matter of less concern.

For many years the United States Department of Agriculture has conducted experiments in artificially reseeding worn-out or run-down native pasture lands in the West, but practical results are limited to a small acreage of lands where soil and moisture conditions are very favorable, and even on such lands it is frequently a question whether the increase in forage, or the saving of time in securing revegetation, will justify the expense of seeding.

The improvement and maintenance of the forage crop, then, must be accomplished largely through management which will meet the requirements of the desirable native plants so that they can maintain themselves and reseed as often as necessary. The gist of the whole matter is that the requirements of the vegetation which makes up the forage crop on the pasture lands must be studied and taken into account in working out a system of grazing management.

Studies of this kind were undertaken by the Forest Service of the United States Department of Agriculture in 1907 on depleted ranges of a National Forest area in northeastern Oregon, with the object of developing a plan of using the range which would harmonize the requirements of the vegetation and the requirements of successful livestock management in the greatest possible degree. The requirements of the important range forage plants and the essential factors, including grazing, which affect their growth and reproduction, were carefully studied over a period of 5 years.

With the data thus secured, a system of grazing known in the Forest Service as "deferred grazing" was planned and put into effect on a practical scale. It was found, for example, that approximately one-fourth of the grazing sea-

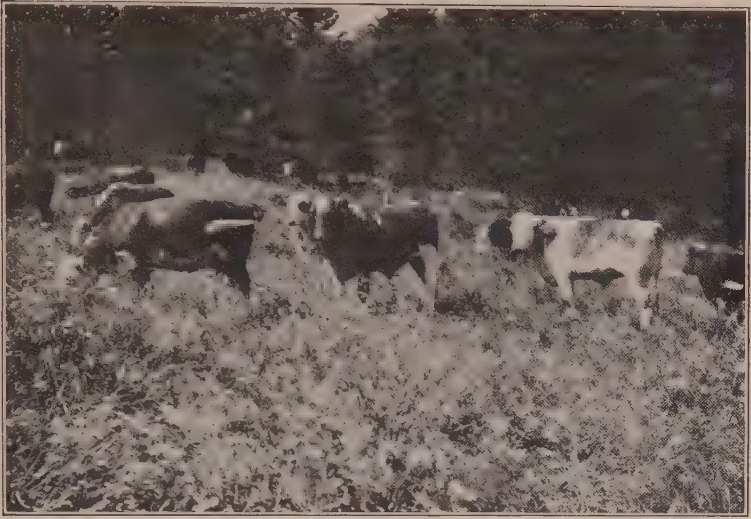


FIG. 1.—EARLY SUMMER GRAZING ON NATIONAL FOREST RANGE IN MONTANA.

The carrying capacity of National Forest ranges has been increased 14 per cent by improvement in management since 1907, and in addition the ranges now produce a large percentage of fat stock where formerly only feeders were turned off.

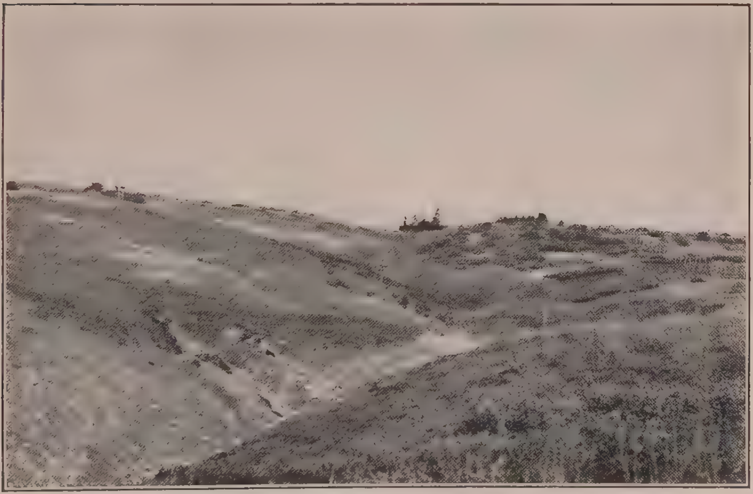


FIG. 2.—AREA LARGELY DENUDED OF VEGETATIVE COVER.

From this area of approximately 10 acres at an elevation of 10,000 feet in Utah a rainfall of 0.70 inch, which fell in 55 minutes on July 21, 1915, washed off 716.92 cubic feet of air-dried sediment—about 25 tons.

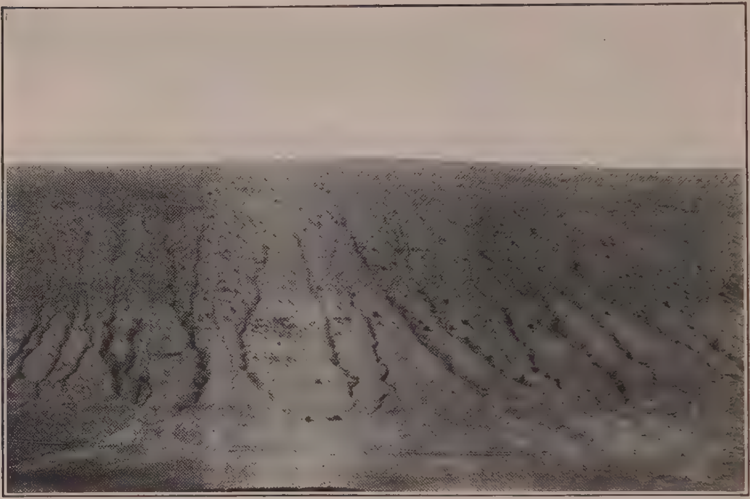


FIG. 1.—GRASSLAND IN NEW MEXICO ERODING AS A RESULT OF THE VEGETATION HAVING BEEN DESTROYED BY OVERGRAZING.

Reestablishment of the vegetation and checking erosion are difficult on such areas.

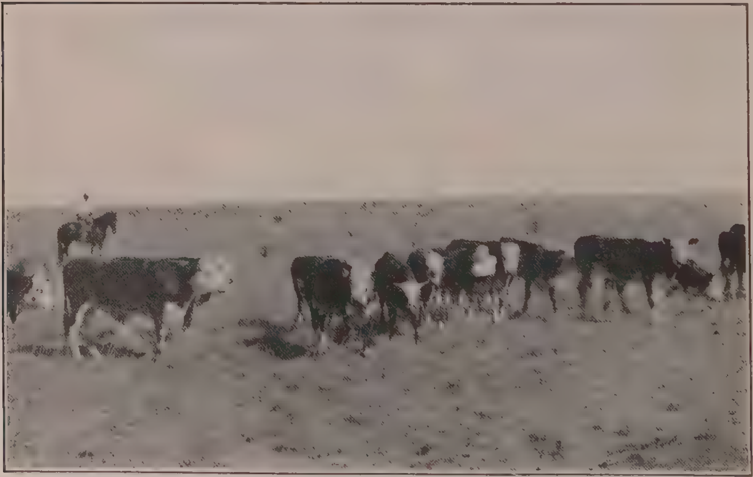


FIG. 2.—GRAMA GRASS RANGE ON THE JORNADA PLAINS OF NEW MEXICO.

This range has improved 33 per cent since April, 1913, primarily as a result of light stocking during the growing season.

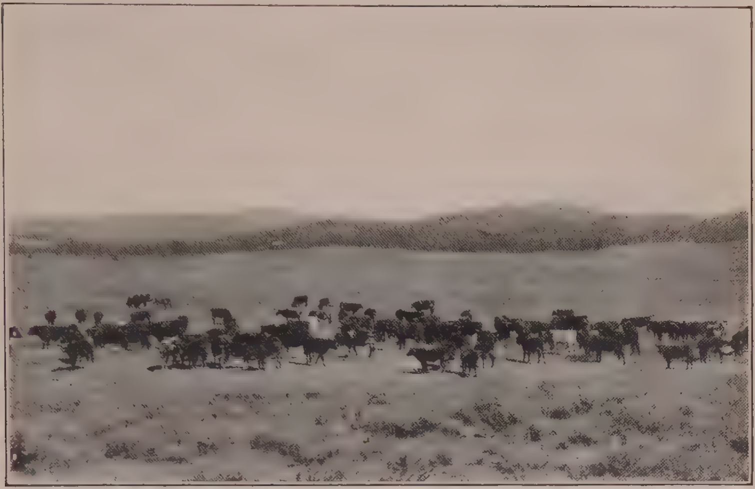


FIG. 1.—CATTLE RANGE IN CALIFORNIA WHICH INCREASED 15 PER CENT IN CARRYING CAPACITY BY APPLYING THE DEFERRED GRAZING SYSTEM FOR THREE SEASONS.

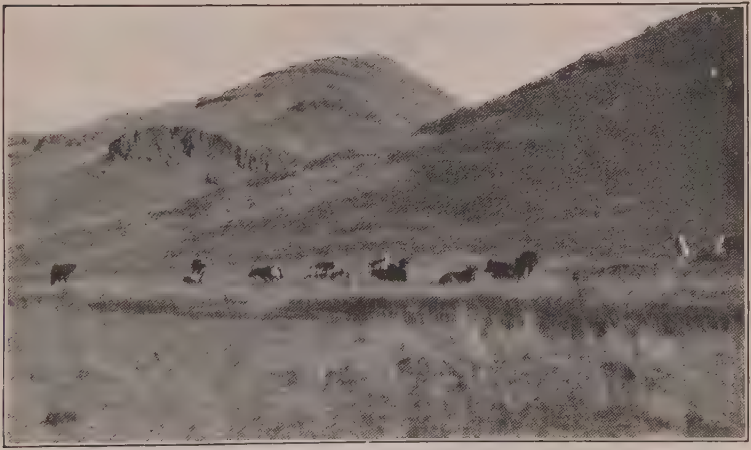


FIG. 2.—FOOTHILL GRASSLAND OF OREGON GRAZED IN SPRING AND FALL BUT ALLOWED TO REST DURING THE MAIN PART OF THE GROWING SEASON, AND AS A RESULT IS IN EXCELLENT CONDITION.

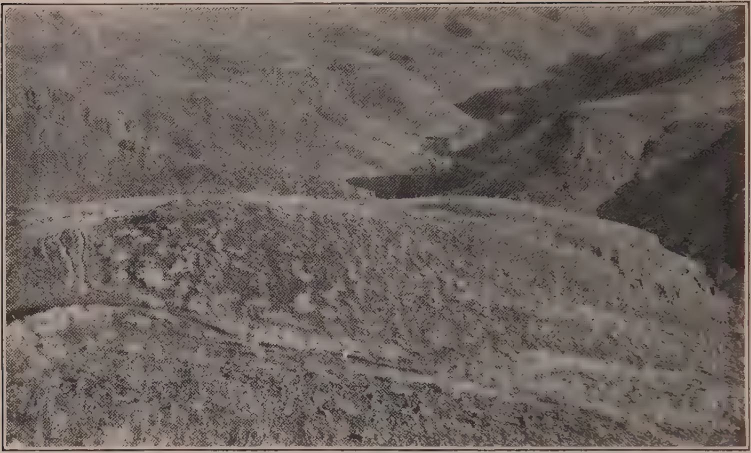


FIG. 1.—FOOTHILL GRASSLAND OF OREGON REDUCED TO THREE-TENTHS OF A GROUND COVER AS A RESULT OF YEARLONG GRAZING FOR A NUMBER OF YEARS.

A great deal of the fine surface soil has been washed off. The remaining bunches of grass are protected against grazing, as shown in the figure following.

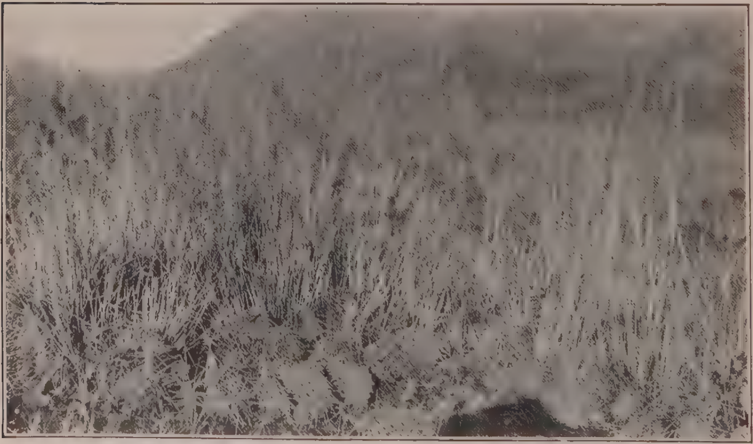


FIG. 2.—THE GRASS REMAINING ON THE RANGE SHOWN IN THE PRECEDING FIGURE IS PROTECTED AGAINST GRAZING BY PRICKLY PEAR.

son remained after the important range plants had matured seed. Accordingly, an area equivalent to one-fourth the carrying capacity allotted to a band of sheep was protected against grazing until the important plants on it had matured seed. After seed maturity the first year the area was heavily grazed, so that the sheep might aid in planting the seed by trampling it into the ground. During the second year, or during the first season after a crop of fertile seed was produced, the area protected the first year was again protected until after seed maturity, when it was only moderately grazed in order to give the seedling plants from the first year's seed crop a chance to develop a good root system before they were subjected to trampling. Where the vegetation at the beginning was vigorous enough to produce a crop of fertile seed the first year, the one-fourth of the range selected for reseeding was protected until after seed maturity for two seasons only. It was then grazed early in the season, and another one-fourth was reseeded by keeping the stock off until after seed maturity each year for two years. In the same way each one-fourth of the range was reseeded naturally, without depriving the stock of the forage on any part of the range any year.

Where the vegetation was badly overgrazed at the beginning it was found that two seasons of protection until after seed maturity was necessary before the original plants became vigorous enough to produce a crop of fertile seed. In such cases it took 4 years to accomplish what was accomplished in 2 years where the original vegetation was vigorous enough to produce a crop of fertile seed the first season of protection.

A study was made to determine the improvement in vegetation secured under this plan of management as compared with similar range grazed throughout the season each year, and also with fenced areas not grazed at all. At the end of the third year it was found that the reproduction from seed was five and one-half times greater on the lands grazed after seed maturity each of the three seasons than on the areas totally protected against grazing, while the reproduction of good forage species was much greater.

It was found that establishment of seedlings depends very largely upon the thoroughness with which the seed is planted. Similarly, it was found that nearly all fertile seeds will germinate on the surface of the ground, but the resulting plants are unable to extend their root systems deep enough to reach the moist lower soil, so that where the surface layer of soil dries out early in the season, as it does on most of the range lands, the young plants die from drought. This is what happened on the lands totally protected against grazing, and as a result a large percentage of the reproduction was made up of less valuable plants, the seeds of which are provided with contrivances which work them into the ground. On the area grazed after seed maturity the sheep trampled a good deal of the seed into the ground and reproduction as a consequence was much better.

Following the Oregon experiments the system of deferred grazing has been tested out elsewhere on both cattle and sheep ranges, and both practically and experimentally, with results that confirm those secured in Oregon. In a three-years' test on early summer overgrazed sheep range in Wyoming, the total vegetation on range grazed each year after seed maturity increased at least 100 per cent, and of this at the end of three years 80 per cent was made up of the best forage plants. On an adjoining area protected against grazing for three seasons the total vegetation increased 80 per cent, while the proportion of desirable forage plants at the end of the test was only about 25 per cent. Adjoining range, grazed season-long each of the three years, had only one-half as much total vegetation as the area grazed each year after seed maturity, not more than 22 per cent of which was made up of the best forage plants.

On desert grass range of the Jornada Plains in southern New Mexico an area of 35,686 acres was fenced in April, 1913. During the main summer growing seasons of 1913 and 1914 it was stocked with cattle only to about one-fifth to one-third of its carrying capacity, in order to give the vegetation a chance to develop and produce seed. During the remaining 8 months or so of each year the area carried stock to about its existing capacity. In the summer of 1915 the actual number of good forage plants per unit area, according to experimental count, was 33 per cent greater on the fenced area than on the outside range. Further, the height growth of the vegetation in the pasture exceeded the growth of that outside by from 2 to 6 inches. When the area was fenced in 1913 it was in poorer condition than the outside range is at present, for the latter has recuperated as the result of two exceptionally good years for forage growth in New Mexico. The improvement in the pasture is largely the result of protection during the summer growing season, and shows what can be accomplished even where growing conditions are less favorable than on the majority of pasture lands.

The principles of deferred grazing are being applied on National Forest ranges as rapidly as possible, and the results in practice bear out those secured experimentally. Where it is not possible to defer grazing until the vegetation matures seed, it is planned to give each part of the range in turn its chance for the maximum undisturbed growth consistent with use. It is firmly believed that the maximum continuous carrying capacity of the range can not be maintained without the application of the principle of deferred grazing.

SUGGESTIONS FOR IMPROVING AND MANAGING NATIVE PASTURES.

The principles just discussed may be summarized into the following points for application in the management and improvement of native pasture lands in the range States, especially lands under fence:

(1) Avoid grazing any of the pasture while the ground is wet in spring and the principal forage plants are just beginning growth.

(2) Limit the number of stock to what it is believed the whole area will support, at least in good condition for feeders.

(3) Apply the principles of deferred grazing as nearly as possible.

(4) Control and distribute the stock by fences, well-distributed watering places, and salt troughs, so as to minimize handling, natural travel, or congregating in large herds. In other words, work for open, quiet grazing, uniformly distributed over the entire area.

(5) Watch the vegetation on the area as a whole to find out whether the best forage plants are increasing or decreasing, and increase or decrease the number of stock as may be necessary to bring the pasture, or each compartment of it, to its maximum forage production.

With the limited information available, it is difficult to set a time limit for the protection of the pasture lands before grazing begins in the spring. In the arid and semihumid sections stock should probably be kept off for approximately 2 weeks after growth of the main forage plants begins. Where moisture is abundant throughout a long growing season, this feature is not so important. If the pasture land is an important part of the farm, it will in most cases pay in the end to feed the stock the extra 2 weeks in the spring, in order to give the vegetation a chance to get a good start. This period of protection is merely tentative, and may be materially changed as a result of further experiment and observation. The essential point is that some measure of protection at the beginning of the growing season is essential in intensive pasture management.

With grazing restricted at the beginning of the season, it is believed that when the stock is allowed to run over the whole of the pasture, limiting the number to what the area will carry and turn off in good feeder condition, is sufficient protection against overstocking to begin with.

As an illustration of the practical application of deferred grazing, take, for example, a pasture of 600 acres. It should be divided by cross fences into, say, three compartments of approximately 200 acres each, arranged so as to give the best distribution of water and shade. Beginning in 1916, for example, area No. 1 should be grazed first, No. 2 second, and area No. 3 should not be grazed until the important forage plants have set seed. It may then be grazed heavily. In 1917 area No. 2 should be grazed first, area No. 1 second, and area No. 3 should again be protected until the important forage plants have set seed, and should then be grazed only moderately, in order to avoid as far as practicable the destruction of young plants by grazing or trampling. In 1918, area No. 1 should be grazed first, area No. 3 second, and area No. 2 should be protected until the important forage plants have set seed. It should then be grazed heavily. In 1919, area No. 3 should be grazed first, area No. 1 second, and area No. 2 should again be protected until the plants have set seed, and then be grazed moderately. In 1920, area No. 3 should be grazed first, area No. 2 second, and area No. 1 protected until the important forage plants have set seed, and then be grazed heavily. In 1921, area No. 2 should be grazed first, area No. 3 second, and area No. 1 moderately grazed after the plants have set seed. The period 1922 to 1927 should be a repetition of the plan for 1916 to 1921, except that in 1922 area No. 2 should be grazed first instead of second, and area No. 1 second instead of first, in order to give the young plants on area No. 1 the additional advantage of protection during the fore part of the season, so that they may become thoroughly established. The management throughout the period is more concretely shown by the following table:

Order of grazing.

Year.	Area No. 1.	Area No. 2.	Area No. 3.	Year.	Area No. 1.	Area No. 2.	Area No. 3.
1916	First....	Second..	Third.	1920	Third...	Second..	First.
1917	Second..	First....	Third.	1921	Third...	First....	Second.
1918	First....	Third...	Second.	1922	Second..	First....	Third.
1919	Second..	Third...	First.				

By following this plan the various portions of the range will be given not only equal chance to reseed but equal protection against grazing during the fore part of the growing season. Should one part of a pasture be in greater need of building up than another, it may be advisable to vary the plan in a way to secure a maximum crop over the whole area as soon as practicable. It is possible, too, that the character of the vegetation, the soil, and moisture conditions may be slightly different on different parts of the area, so that one part will be more in need of protection than another. A knowledge of the individual case is necessary in order to decide what variation should be made, but if the principles involved are clear, this should not be a difficult matter.

The advantages of readily available water and salt and of quiet handling, with equal chance for the individual animals in feed lots, are well known to stockmen. The same advantages apply to the animals in the pasture, and the object should be to obtain them as far as practicable.

The same observation should be given the pasture lands to determine both change in amount of vegetation and in species as the farmer gives his alfalfa land to determine the density of the stand and the amount of weeds present. To facilitate observations of this character, a plot about 2 rods square should be fenced in each typical part of the pasture. Stock should be kept off these check plots at all times, so that the vegetation will have the best opportunity for growth. By careful comparison of the forage within these protected areas and on the adjoining pasture, it will be possible at any time to tell whether the pasture is or is not approximately at a maximum, both as to density of vegetation and species: For accurate comparison, the number of plants, size of plants, and general vigor for each species per unit area should be determined; but generally careful observation without counts should show whether or not the best practical results in carrying capacity are being secured. The loss of pasturage on the inclosed plots and the cost of the fences and their maintenance will amount to but little charged against the pasture as a whole.

The acreage of native pasture lands where it will pay to seed cultivated forage plants are so limited by soil and moisture conditions that definite suggestions as to where such seeding will pay are not given here. A better plan will be for the individual to ask advice of the United States Department of Agriculture or the State agricultural experiment station for his own specific case.

It has been pointed out that while the damage due to erosion is generally recognized, the character and extent of this damage are not always fully appreciated. The rills, gullies, and larger washes are plain enough, but the removal of a sheet of good soil from the surface of large areas by wind, water, and other factors is apparent only after careful observation. Yet it is important. The first step in checking damage of this character is to restore the native vegetation of the pasture. The suggestions already made relative to grazing management should accomplish this, if it can be accomplished. When the vegetation on the area as a whole has been restored, engineering work to fill up washes and gullies may be advisable. Engineering methods without restoration and protection of the vegetative cover, however, will be expensive and not productive of the best results.

HOW SEED TESTING HELPS THE FARMER.

By E. Brown,

Botanist in Charge of the Seed Laboratory, Bureau of Plant Industry.

EVEN under the most favorable conditions crop production is uncertain, depending as it does on so many factors partially or wholly beyond the control of the farmer. Agricultural advancement is largely a matter of overcoming the factors of uncertainty.

The natural conditions of climate must be accepted as they are, although their effect, as well as the condition of the soil, can be modified through drainage, irrigation, cultivation, fertilization, and crop rotation. One of the chief factors in crop production, however, and one which can be fully controlled, is the quality of the seed planted.

The farmer who uses seed that has been carefully tested and found to be of good quality knows that under favorable conditions a good stand will be obtained in the field. It is poor economy for him to invest the money and labor necessary for the production of a crop and overlook the possibility of failure through the use of poor seed.

While valuable varieties and strains of our cultivated crops are being brought into use through breeding, selection, and introduction, comparatively little is being done to improve the quality of the seeds of those commonly cultivated varieties with which most of our farming land is seeded.

The judging of seed corn and testing it for germination have come to be the chief features of corn shows and play a prominent part in all present-day agricultural education, but the seeds of the small grains have received too little attention, while grass, clover, and other forage-plant seeds have been for the most part neglected. It is in connection with these latter seeds, with which the farmer is not familiar, that seed testing is of most service to agriculture.

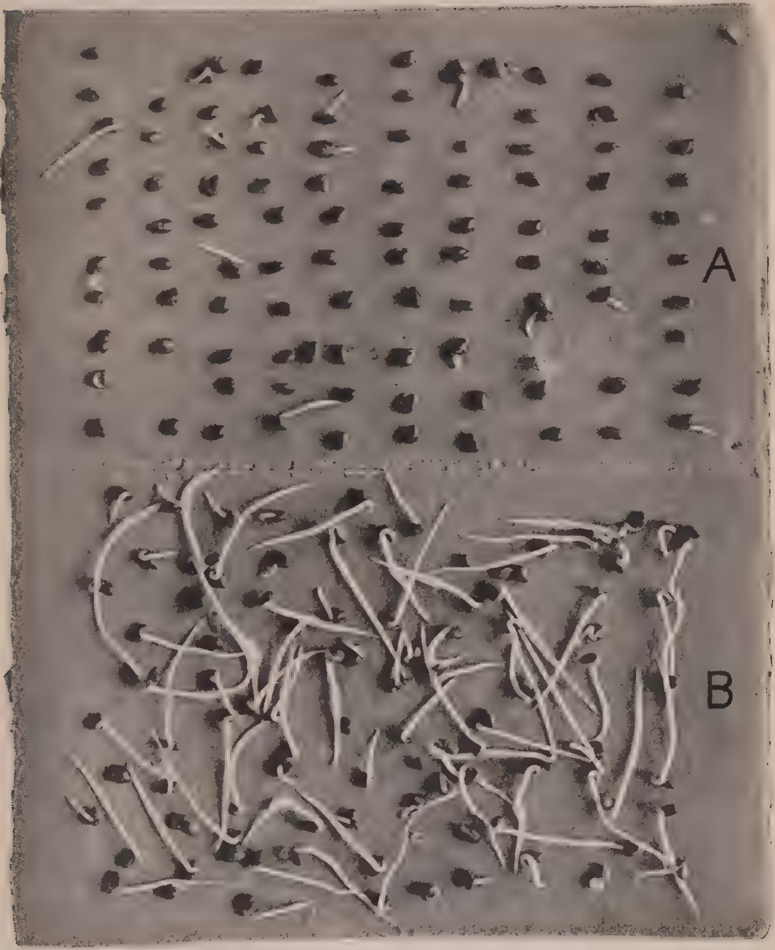
The greater part of the seed sown on American farms, aside from cereals, corn, and cotton, is not produced on the farm where it is used, but is gathered together from all parts of the world by wholesale seedsmen, is mixed, recleaned, and graded to suit the demand at the time, and then distributed to the localities where it is used. The farmer is told little about the place of origin and often less about the quality of the seed purchased.

Seed testing furnishes a means of pointing out to the farmer certain features that determine to a large extent the value of any particular lot of seed. Few farmers will buy seed if they know that only one-third or one-fourth of it will grow, but seed of this quality is being imported and sold to our farmers every year. The farmer who buys clover or alfalfa or timothy or orchard-grass seed but once a year is not able to judge the quality of the seed for himself. He is in need of information as to the kind or variety he is buying, whether it is adulterated with cheaper and perhaps useless substitutes, what proportion of it may be expected to produce plants under favorable field conditions, and whether it contains the seeds of weeds which may become troublesome. All of this information is necessary before he can be reasonably sure of producing a good crop. Under present conditions this information is not generally furnished by seedsmen in such a way that it is of service to the farmer.

INEFFICIENT SEED LAWS.

Twenty-six States have passed laws regulating the sale of seeds, and in most of them certain labels indicating quality are demanded, but the information thus conveyed is meager at best and is required only when sales are made within the State. In only one State has there been an attempt to apply the provisions of the law to keeping out of its boundaries seeds which would not be permitted sale within them. No statement of quality is required with the large proportion of agricultural seeds sold from one State into another.

Seed testing gives the seedsman accurate information about the seeds he is selling and makes it possible for him to conduct his business with that intelligent interest which has too often been lacking, but which is rapidly becoming necessary to the successful seed merchant. Through the increased



GERMINATION OF IMPORTED CRIMSON CLOVER SEED.

A, Worthless seed—mostly dead; *B*, good seed—germinated well.

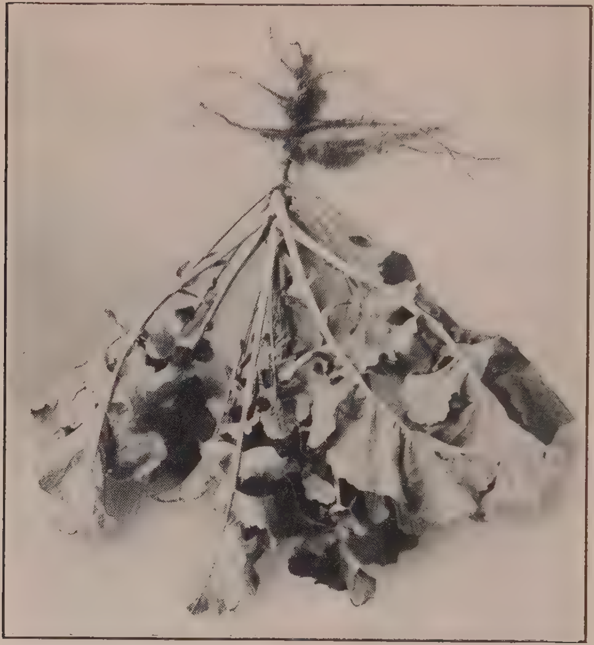


FIG. 1.—WINTER RAPE—GOOD GROWTH OF SUCCULENT FORAGE.

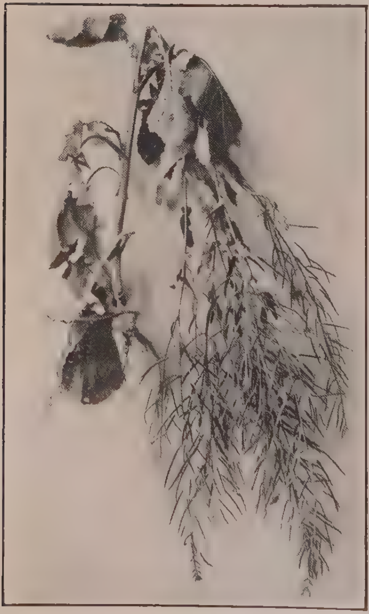


FIG. 2.—OIL SEED RAPE—GONE TO SEED; LITTLE FORAGE LEFT.

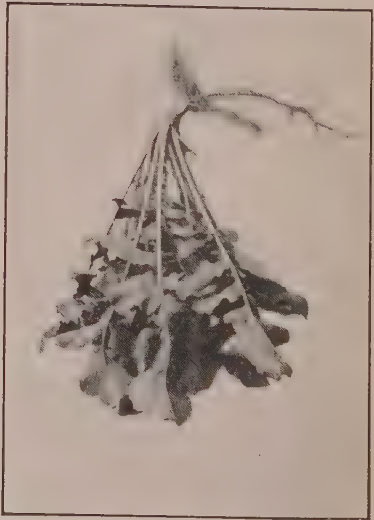


FIG. 3.—TURNIP RAPE—LITTLE FORAGE COMPARED TO WINTER RAPE; LEAVES THIN AND HAIRY.

PLANTS FROM THREE TYPES OF SEED IMPORTED AS RAPE.

Photographed two and one-half months after seeding.

attention that is given to the importance of good seed the general quality of commercial seed has greatly improved, the demand for high-grade seeds is increasing, and more of the refuse which was formerly sold as seed is now cleaned out and destroyed; but there is still much to be desired. Under present conditions each farmer must get for himself information as to the quality of the seed he is sowing; otherwise, poor stands and crop failures will frequently follow.

IMPORTED SEEDS.

Through the enforcement of the seed importation act the quality of the seeds brought into the United States has greatly improved. This act prohibits the importation of the seeds specified only when they are adulterated or unfit for seeding purposes as defined in the act, but it does not prohibit the importation of seed that is dead or that contains large quantities of chaff and dirt. Before this act became a law it was not uncommon for red and alsike clover and alfalfa seed which was worthless for seeding purposes to be imported. The United States had become a favorite market for European seed screenings. Conditions are now changing, and seedsmen are commonly making their foreign purchases on the basis of the seed importation act, so that few lots of low-grade seed unfit for entry under that act are being offered for import. When an occasional lot of such seed is now brought to the United States it is either returned to the country of origin or cleaned in bond under customs supervision and the cleanings exported or denatured.

Tests of samples of foreign seed received through the Customs Service show that between July 1, 1914, and October 1, 1915, over 300,000 pounds of light-weight orchard-grass seed were imported which contained an average of only 28 per cent of seed, the remainder being chaff and dirt. Nearly 2,500,000 pounds of the crimson-clover seed imported during the 6 months following April 1, 1915, contained an average of only 54 per cent of live seed, and of this the germination of 500,000 pounds averaged but 38 per cent. (See Pl. LXXIII.) In other words, enough orchard-grass seed was imported to sow 20,000 acres and enough crimson-clover seed to sow 120,000 acres, none of which could be expected to produce a stand in the field when used at a normal rate of seeding. Dead crimson-clover seed can not be effectively separated from live seed, and both the crimson-clover and orchard-grass seed were imported at such prices that the good seed in these shipments cost more than the best grade of seed on the market at the time. All of this crimson-clover seed of low vitality and chaffy orchard-grass seed is sold to the farmer without recleaning. While the individual farmer can protect himself from the use of such worthless seed by having each lot tested before he sows it, such seed should not be allowed to come into the country. Its importation can result only in profit to the dealer selling it and the loss of the crop to the farmer who sows it.

The United States annually imports from 1,000,000 to 3,000,000 pounds of winter rape seed, most of it coming from the Netherlands. Owing to an embargo placed on the exportation of rape seed by the Netherlands in the spring of 1915, seed was imported as rape from other countries, including France, Argentina, and Japan. This has resulted in seed of three distinct plants being imported and sold as winter rape, as follows: (1) Winter rape, a biennial forage crop with fleshy, succulent leaves, furnishing an abundance of forage the first year and seeding the second year after planting; (2) an oil seed-producing plant, similar to winter rape in the early stages, but maturing seed in midsummer of the first year of growth; and (3) an oil seed-producing turnip, blossoming the second season after sowing and differing from the common garden turnip especially in having no thickened root. This plant has thin, hairy leaves, furnishing little forage compared with winter rape. (Pl. LXXIV.) To point out to the farmer and to seedsmen the identity of the seeds of such substitutes is one of the important applications of seed testing.

ADULTERATED SEEDS.

It has been an all too common practice for seedsmen, either knowingly or unknowingly, to sell seed of a cheaper kind for that of a higher price when they are similar in appearance.

Red-clover seed has been adulterated with millet and yellow trefoil, Kentucky bluegrass with Canada bluegrass, orchard grass with meadow fescue and rye-grass, hairy vetch with spring vetch, and redtop with timothy. Alfalfa has been adulterated with yellow trefoil or sweet clover, and now that the relative prices are reversed sweet-clover seed is being adulterated with alfalfa seed. During the spring of 1915 there was a profit of $75 to $100 a carload on each 1 per cent of timothy sold as redtop. Over a hundred lots of adulterated redtop examined contained an average of 12 per cent of timothy seed.

After the United States Department of Agriculture collected each kind of seed and published for the first time the analyses of those lots found to be adulterated, with the names of the seedsmen who sold them, a marked decrease in the adulteration of that particular seed followed the next season. In the case of the different kinds of seeds investigated, however, the seed trade has not changed its practice until after such publication has been made.

While all crop failures due to the use of poor seeds may be avoided by having seeds tested before sowing, such tests should be made in the most practical and economical way. Seed should be tested, as far as possible, in large lots in the hands of the wholesale dealer, a copy of the analysis accompanying each sale as a guaranty of quality, instead of repeatedly testing seed from the same bulk for individual buyers.

Seed testing helps the farmer (1) by telling him what part of the seed he is using is alive, of what kinds it consists, and how many weed seeds it contains, thus removing one of the important elements of uncertainty in crop production, and (2) by furnishing the means of discovering and putting a stop to the sale of adulterated and low-grade seeds.

PUBLICATIONS ON SEED TESTING.

The following publications contain valuable information upon the testing of seeds, and may be obtained free, so long as the supply lasts, upon application to the Chief of the Division of Publications, United States Department of Agriculture. Those to which prices are attached may be purchased from the Superintendent of Documents, Government Printing Office.

Farmers' Bulletin 253. The Germination of Seed Corn.

Farmers' Bulletin 260. Seed of Red Clover and Its Impurities. 5 cents.

Farmers' Bulletin 306. Dodder in Relation to Farm Seeds.

Farmers' Bulletin 382. The Adulteration of Forage-plant Seeds.

Farmers' Bulletin 428. Testing Farm Seeds in the Home and in the Rural School.

Farmers' Bulletin 676. Hard Clover Seed and Its Treatment in Hulling.

Bureau of Plant Industry Bulletin 58. The Vitality and Germination of Seeds. 10 cents.

Bureau of Plant Industry Bulletin 83. The Vitality of Buried Seeds. 5 cents.

Bureau of Plant Industry Bulletin 111, part 3. Imported Low-grade Clover and Alfalfa Seed. 5 cents.

Bureau of Plant Industry Bulletin 131, part 1. The Germination of Vegetable Seeds. 5 cents.

Bureau of Plant Industry Circular 101. The Germination of Packeted Vegetable Seeds.

Department Bulletin 138. Commercial Turkestan Alfalfa Seed. 5 cents.

Department Bulletin 169. Injury by Disinfectants to Seeds and Roots in Sandy Soils.

Department Bulletin 186. A Method of Fumigating Seed.

The various State agricultural colleges also may have free bulletins on testing seeds.

STORIES OF THE ATMOSPHERE.

By Roscoe Nunn, *Section Director, Weather Bureau.*

KNOWLEDGE of the realm of the air often gives intellectual pleasure and furnishes a delightful stimulus to the study of nature in general. Possibly our eagerness to realize large and definite commercial values out of the study of the weather has caused us to overlook other values, not so tangible, perhaps, but which may, nevertheless, be very real. Science is not utilitarian only. If it were limited to that its wings were clipped.

There is no day without its story of the air. To one able to read the weather map published daily by the Weather Bureau, each day holds some interesting atmospheric event. Moreover, the weather map is more interesting and significant than a mere statement of weather conditions in so many words. The reader of the weather map interprets it for himself, to an extent depending on his knowledge of meteorology and weather forecasting, and thus his study not only enables him to use the official forecast more intelligently when he has pecuniary or other interests at stake, but also affords him pleasurable intellectual exercise.

There are many phases of the subject of meteorology that may be comprehended merely from careful reading, and in almost any one of the many books on meteorology will be found a series of interesting stories. The object of this article is not so much to tell these tales as to suggest their titles and give glimpses into a few of the many stories that are available to those who desire to read them, either in books or in the air itself.

There is an interesting story about how the earth came to have any atmosphere at all; another of how the motions of the earth affect the atmosphere; another how the sun controls atmospheric temperatures; another of the effect of mixed land and water areas upon the distribution of temperature and moisture; another of the pressure and circulation of the atmosphere, embracing the wind systems of the globe.

There is the story of the water vapor in the atmosphere, and of the clouds, which are the children of the sun and the sea, and the story of precipitation (rain, snow, sleet, hail, dew, and frost). There is the story of the dust in the atmosphere, much of which, "meteoric dust," comes from interplanetary space; and there is the story of the colors of the sky and the many wonderful and beautiful phenomena of light. There are the daily stories of storms and of warm and cold waves, and there is the story of climates, that bear so vitally on the destinies of races.

One of the most absorbing of these stories, perhaps, is that of the development of the science of meteorology—how one discovery after another was made, how instruments were invented to aid in the discoveries, and how all the great Governments to-day maintain weather services for the public benefit.

EXPLANATION OF PLATE.

(F) But little is known of space above 24 miles. The aurora, volcanic dust, and meteors have given some information. Meteors, or shooting stars, are masses of matter that come from outer space into the earth's atmosphere and, by friction with the air caused by their high velocity (12 to 50 miles per second), are heated white hot, which makes them visible. They may be seen almost any clear night. They appear mostly in the region between 30 and 100 miles above the earth. It is obvious that they would not become visible at those elevations if there were no air present.

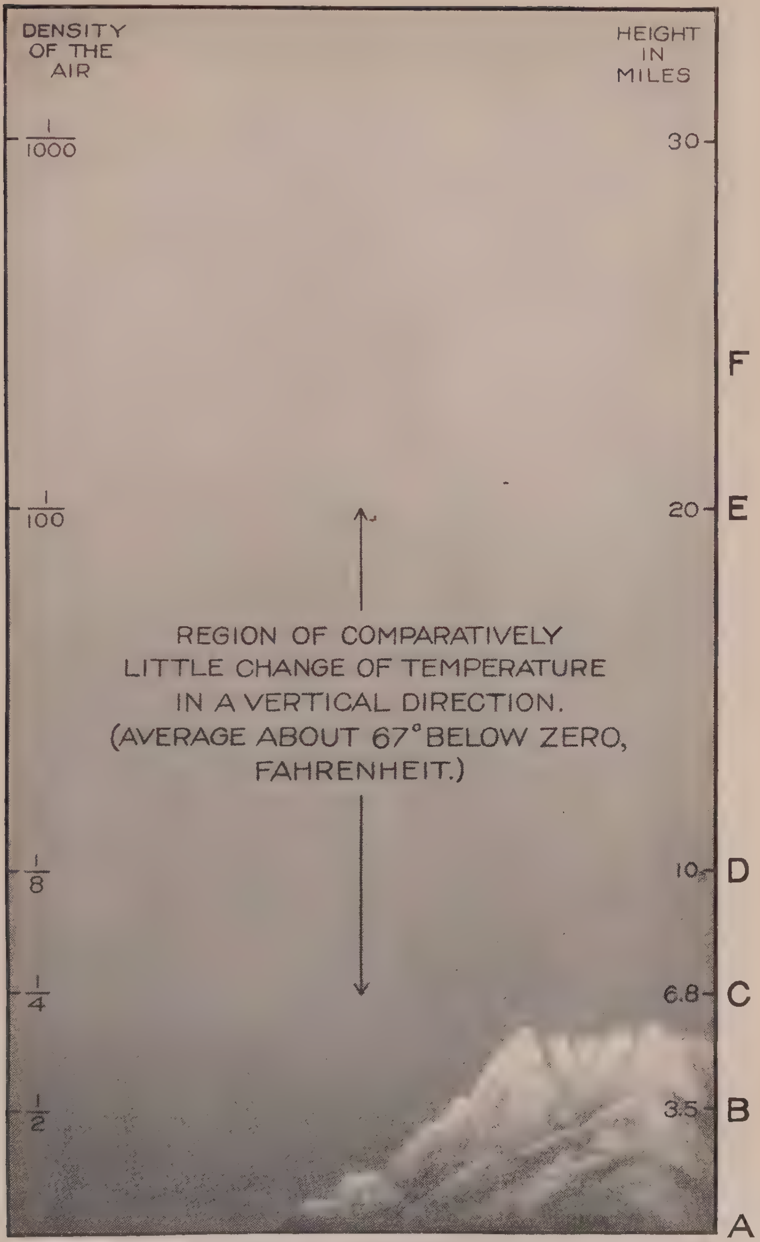
(E) The greatest height reached by sounding balloons is about 22 miles. Considerable data relative to atmospheric pressure, winds, temperature, and moisture up to the 20-mile level have been obtained by means of instruments carried by these balloons.

(D) Seven-eighths of the atmosphere (by weight) lies below the level of 10.2 miles. This is about the upper limit of water vapor and clouds in the tropics.

(C) Three-fourths of the atmosphere (by weight) lies below the altitude of 6.8 miles. This level in middle latitudes is near the bottom of the "stratosphere," or region where the temperature ceases greatly to fall with increase of altitude, but remains nearly constant, or even rises considerably at times, with increase of altitude. The "stratosphere" extends upward to an unknown height. Storms operate mainly below this level. This region has been explored frequently by sounding balloons carrying registering instruments. Manned balloons have gone as high as 6.5 miles. Kites carrying instruments have gone as high as 4.5 miles.

(B) Although some mountain peaks are considerably higher than this level (3.6 miles), this is about the limit for permanent human habitation. The greatest altitude reached by any mountain climber is about 4.5 miles. (The top of Pike's Peak, Colo., is about 2.7 miles above sea level.)

(A) Sea level. The atmosphere is densest at the bottom. The sea-level plane is usually considered the bottom of the atmosphere, but there are depressions in the earth much below the level of the oceans, such as the Dead Sea, Death Valley, Cal., etc. In these low places the atmosphere is denser than at sea level.


DENSITY OF THE AIR
HEIGHT IN MILES
1/1000
30
F
1/100
20
E
REGION OF COMPARATIVELY LITTLE CHANGE OF TEMPERATURE IN A VERTICAL DIRECTION. (AVERAGE ABOUT 67° BELOW ZERO, FAHRENHEIT.)
1/8
10
D
1/4
6.8
C
1/2
3.5
B
A

VERTICAL SECTION OF THE ATMOSPHERE.

The shading represents approximately the relative density of the air at different altitudes.

THE WILL-O'-THE-WISP OF SCIENCE.

Being invisible and, in the ordinary sense, intangible, the air is one of the most difficult and illusive subjects for the scientist to investigate first hand. If one could only see the processes that go forward in its depths or could get outside of it and look upon it from a place apart! But no; we are immersed in it like the fish in the sea, and we can not even exist beyond its limits. In fact, man can not go anywhere near its upper limits. He must remain forever immersed in it; forever barred from seeing it from the outside.

Thus we remain blind to the wonderful activities of the atmosphere that go on about us constantly, although the effects of many of those processes are seen or felt. We see smoke and dust floating in the air. We see the clouds but can not see the actions of the air in the formation of those clouds. We see the rain, snow, and hail, but can not see the making of the raindrops nor the fashioning of the snowflakes nor the growth of hailstones. Probably a fish does not see the water in which he lives but sees only the larger things that exist in the water. Man only sees some of the things that exist in the atmosphere, not the atmosphere itself.

As a matter of fact, man's sphere is a narrow one when we consider the vastness of the universe or even the immense mass of the earth, of which man claims to be the lord. Under our feet is a body of matter nearly 8,000 miles thick, into which man has penetrated hardly more than a single mile. Overhead is the atmosphere extending upward 100 miles (in a very rarefied state possibly much farther), upward into which man has never gone more than about 6½ miles. Thus, in our vertical movement we are confined to 7½ miles. In our common life we are limited to a zone much narrower even than that—a zone bounded on one side by the surface of the earth and on the other by the plane of the tops of our office buildings, or practically within a space of 300 feet from bottom to top, mostly within less; in fact, by far the greater number of mankind are bound to the surface of the earth—anchored to the bottom of the ocean of air.

THE ATMOSPHERE AS A WHOLE.

It is worth while to try to get a mental vision of the atmosphere as a whole. Practically the entire layer of atmosphere is confined to a shell extending outward from the earth not more than 200 miles, according to the best evidence we have. Even at a distance of 50 miles above the earth the quantity of air is thought to be almost inappreciable. The density of the atmosphere decreases rapidly as altitude increases. (See Pl. LXXV.) If the atmosphere were of the present sea-level density from bottom to top, it would all be confined within 5 miles of the earth. One-half the mass of the atmosphere is found within 3½ miles of the surface of the earth, three-fourths is below the 7-mile level, and seven-eighths below the 10-mile level.

Thus the solid earth has but a thin coating of air only about one-fortieth as thick as the diameter of the earth at the most; or, if we consider the atmosphere only in its really appreciable extent (about 40 miles above the earth), only one two-hundredth as thick as the diameter of the earth—a mere coating, not thicker, relatively speaking, than the skin on an apple of ordinary size. (See fig. 10.)

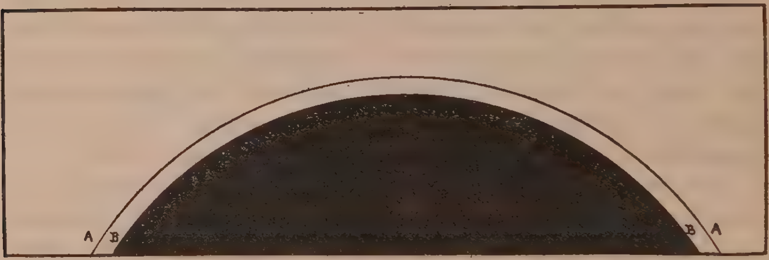


FIG. 10.—Showing the thinness of the atmospheric envelope on the earth. The line *A* represents the extreme limit of the earth's atmosphere above the surface of the earth *B*. The assumed limit of the atmosphere is 180 miles and the diameter of the earth is approximately 8,000 miles.

Consider further the fact that storms operate only in that part of the atmosphere lying within about 7 miles of the earth—mainly within 3 miles—and it is truly wonderful what mighty forces are generated and vast energy expended within this thin film of gas. A storm condition may cover one-third the United States, distinctly dominated by forces round about a common center; the disturbance may be 1,000 to 1,500 miles in diameter, while its thickness or upward extent is probably less than 7 miles. In other words, we have tremendous forces at work in a body of air of the relative dimensions of a postal card lying flat upon one's desk. It is in this comparatively thin layer of mere gas that tornadoes form and exert devastating violence in their short and narrow courses, and the great hurricanes of tropical origin form and travel thousands of miles, lasting for a week or more.

Being composed of gases (by percentage of volume, for dry air—nitrogen 78, oxygen 21, argon 0.94, carbon dioxide 0.03, with traces of other gases), the atmosphere is subject to the laws of gases as regards heating, cooling, expansion, and compression, etc. But this vast quantity of atmospheric gas is not quietly confined and subject to the manipulations of man, as gases are handled in a laboratory. It clings to the earth, a body whose surface is composed of land and water most irregularly distributed, and which as a whole rotates rapidly and continually changes its position with relation to the sun, which pours upon it a vast amount of heat that strikes only one-half of the surface of the body at any one time. As a result, the atmosphere as a whole is very irregularly and unevenly warmed and becomes the very symbol of instability. Yet there are certain general laws of the atmosphere that are detected amidst all the apparent confusion, and man has already reduced his atmospheric discoveries to a working basis.

THE GENERAL CIRCULATION.

The general circulation of the atmosphere might be made the theme of a profoundly interesting story. This vast movement—the exchange of air between the equator and the poles—is due to the fact that the equatorial regions and the polar regions are unequally heated. It has been found that the average difference in temperature between the equator and the poles is about 80 degrees Fahrenheit. The effect of such excess heat at the equator is tremendous. The equatorial region becomes the engine that moves the machinery of the general circulation of the earth's atmosphere.

The lower stratum of air of the tropics expands on being heated and is forced aloft by the cooler and denser air from the neighboring temperate zones, thus establishing a flow toward the equator along the earth's surface, a flow that is maintained by the constant temperature difference. At a great elevation the equatorial air flows off to the north and to the south, finally reaches the polar regions, and there descends and returns toward the equator along the surface of the earth. (The explanation of this flowing of the upper air from equatorial to polar regions and its descent and return can not be given here. In fact, many of the details of this general circulation are not well known.)

Thus are established the great primary movements of the general circulation. These primary movements are much disturbed by the rotation of the earth and by the mixture of land and water, the land being varied in elevation and the ocean currents varied in temperature. Numberless storms continually invade the general system and obscure its workings.

ATMOSPHERIC DUST.

There is much evidence tending to show that the nucleus of every raindrop is dust. If it is true that the condensation of the moisture of the air is dependent upon dust motes, it can readily be seen how important the dust of the atmosphere is. This story can not be told here, but the conclusions of investigators are that atmospheric dust plays an important part in at least four ways, and these are enumerated by Milham as follows: (1) It is one of the chief causes of haze; (2) it probably serves as centers of condensation for all fog particles and rain drops (it was once thought that condensation was impossible without it); (3) it is the cause of the sunrise and sunset colors and, perhaps, of the blue color of the sky; (4) it is the cause of twilight.

The sources of atmospheric dust are the dust blown up from the surface of the earth by the wind, the dust from volcanoes, the dust from meteors, which are burned and disintegrated in their swift passage through the atmosphere (sometimes at velocities of 40 to 50 miles a second), and the dust from ocean spray. In the case of the volcanic explosion in Krakatoa, between Sumatra and Java, in 1883, dust and steam were thrown into the air to an estimated height of nearly 20 miles, and, according to Milham, "the presence of this dust could be detected in sunset colors all over the world for more than three years."

Dust is carried from place to place by the winds and over great distances. "Indeed, it might almost be said that every square mile of the earth's surface may have received dust from every square mile of dry land" (Salisbury). The atmosphere gives the surface of the earth no rest but is ceaselessly at work upon it, changing its features in many ways.

MOISTURE IN THE ATMOSPHERE.

It might be said also that the waters of all the oceans have visited every part of the earth, at some time in the history of the globe, so continually and upon such a vast scale are the winds and the forces of evaporation, condensation, and precipitation at work. A continual circulation of water takes place between the hydrosphere (the water areas of the globe) and the atmosphere. The winds blow water vapor from over the seas to the land and ascending currents carry it into the upper atmosphere, where it condenses, is precipitated, and begins the return journey to the seas through springs and rivers. The amount of evaporation from the seas and the amount of precipitation on the land depend upon the temperature and the winds.

It has been estimated that nearly 130 million millions of tons of water are transferred from sea to land and back again to the sea every year. The average annual rainfall of the globe is about 33 inches. In the United States annual averages range from practically no rainfall to about 100 inches. Over the eastern half of the country the annual amounts average from about 30 to about 60 inches; in the Pacific States from 5 to 100 inches. Probably the greatest rainfall in the world occurs among the hills of Assam, in India, where over 500 inches falls in a year. In this region as much as 40 inches has fallen in 24 hours.

THE WEATHER MAP.

Probably the greatest single outcome of modern meteorology is the daily weather map. It first appeared a little more than a half century ago. It was not possible until telegraphy was invented. Synoptic charts had been constructed, however, as early as 1820, but these were based upon observations taken weeks and months previously, and were made for private study and investigation. Reliable daily forecasts were not then possible. The first weather maps based upon observations transmitted by telegraph were issued during the London World's Fair, in 1851. In the United States the daily weather map began in 1871, this country being the fourth to undertake the work, the Netherlands, England, and France having preceded us.

The Weather Bureau has for many years issued daily weather maps from its stations in the principal cities, whence they are widely distributed in surrounding districts. The information given to the public in these maps is not fully appreciated as generally as it should be, since many have made no study of the construction of the map nor of the laws of storms and weather changes. Yet the rudiments of these things are quickly acquired—a little reading of books on meteorology and a minute or two devoted daily to observation and comparison of maps accomplishes the purpose. Even the reading of books on meteorology could be omitted and still a good working knowledge of the weather maps be attained by a little close attention given daily to the map itself.

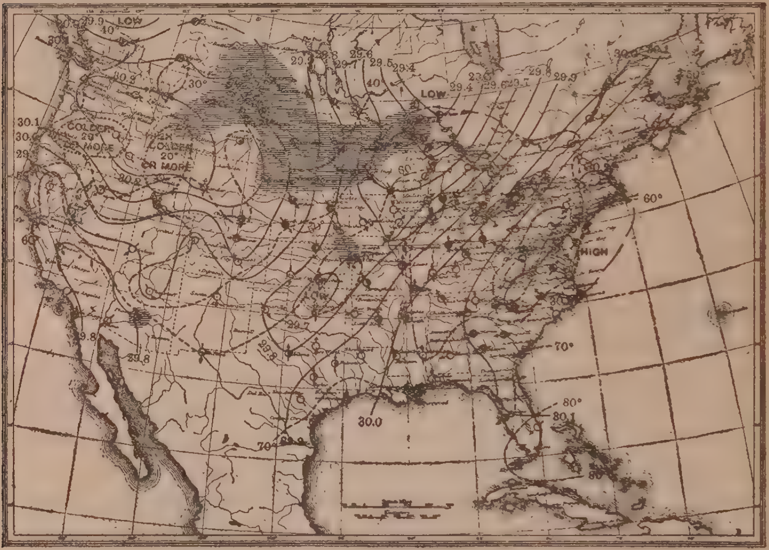


FIG. 11.—Weather map, September 26, 1903, the first of a series of three, showing progress of weather changes across the country. The solid lines run through points of equal atmospheric pressure; the broken lines run through points of equal temperature; the circles show state of weather, white for clear, black for cloudy; arrows point in direction wind is blowing; shaded areas show regions of precipitation last 24 hours.

As time goes on, however, the weather map is appreciated by a larger and larger percentage of the people, especially the younger people. The schools are taking up the subject, so that many thousands of young folks are learning to read and interpret the maps. The study of the maps furnishes a popular and valuable exercise in courses in physical geography in many schools.

An appreciation of the daily weather map is a matter of so great importance and so much to be desired that it was considered advisable to insert in this article three weather maps, which will illustrate the general laws of weather movements in the United States. (See figs. 11, 12, and 13.)

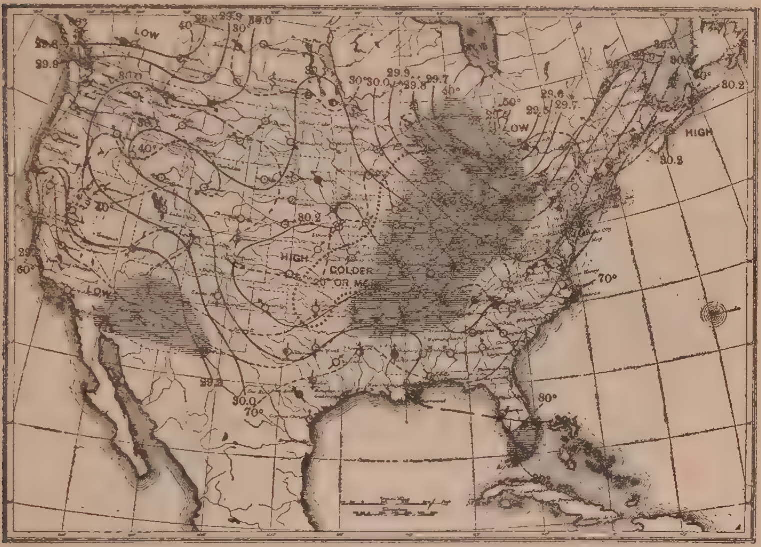


Fig. 12.—Weather map, September 27, 1903, the second of a series of three, showing progress of weather changes across the country. The solid lines run through points of equal temperature; the circles show state of weather, white for clear, black for cloudy; arrows point in direction wind is blowing; shaded areas show regions of precipitation last 24 hours.

These weather maps show some essential facts: (1) That weather changes of a general nature proceed from west to east; (2) that regions marked "low" are centers of an atmospheric disturbance, usually attended by cloudiness and rain; (3) that regions marked "high" are centers of fair weather, or the opposite of conditions attending a "low"; (4) that "lows" and "highs" follow in succession; (5) that rising temperatures occur in front of a "low" and falling temperatures in its rear or in connection with the succeeding "high." These are broad generalities. There are many other things to be noticed as one becomes familiar with the maps. As said before, there is an interesting story in the weather map every day.

In examining the three maps reproduced here (figs. 11, 12, and 13), it must be remembered that the "highs" and "lows" over the central and western parts of the country on the first map (fig. 11), appear the second day farther east (fig. 12), and the third day still farther east (fig. 13). They change somewhat in shape, but are the same highs and lows, only farther east. By the third day the ones in advance on the first day have disappeared over the Atlantic Ocean and new ones are appearing in the Far West. Some "highs" and "lows" travel practically around the globe, but most of them disintegrate before journeying so far. This procession of "lows" and "highs" goes on continually, but not in

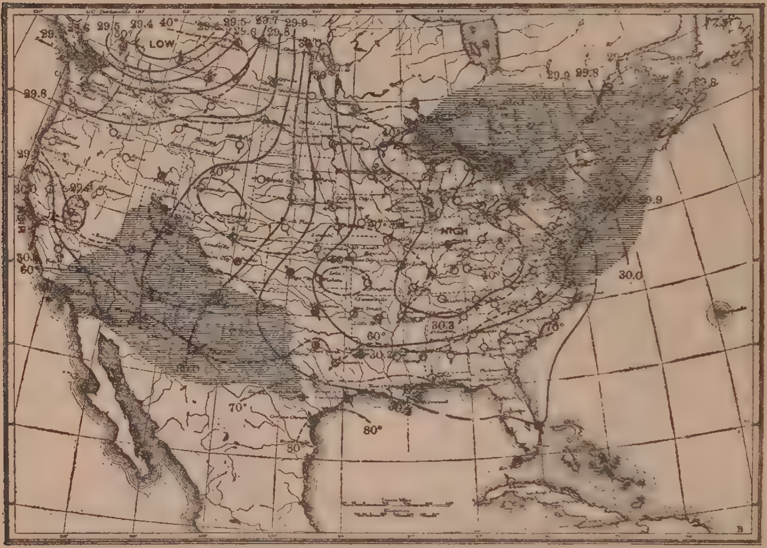


Fig. 13.—Weather map, September 28, 1903, the last of a series of three, showing progress of weather changes across the country. The solid lines run through points of equal atmospheric pressure; the broken lines run through points of equal temperature; the circles show state of weather, white for clear, black for cloudy; arrows point in direction wind is blowing; shaded areas show regions of precipitation last 24 hours.

exactly the same paths nor with the same velocity and intensity.

WEATHER CONCERNS EVERYBODY.

Farmers are more intimately concerned with the weather, perhaps, than any other class of people, with the possible exception of sailors. They have an advantage over city people in their opportunities for observation. Naturally they should know much about the weather and climate of their localities, and many observing ones do, but, as a rule, even these are not able to explain many things which they have observed. The usefulness of their own discoveries and the pleasure afforded by the knowledge could be increased in a manifold degree by attention to the weather map and by the reading of fundamental treatises on the subject of the atmosphere in general.

In some degree this is true of all classes of people. There is no one wholly independent of weather conditions; no one without some interest in the weather and who could not add materially to the pleasure of life by enhancing that interest through a little reading on meteorology. Indeed, it seems that there could hardly be made provision for scientific study more fraught with promise of pleasure and profit for coming generations than the establishment of a short course in elementary meteorology in the schools, both city and country. Thus every boy and girl would be given an opportunity to learn more of the air, the home of all life, and to read for themselves its wonderful stories.

A GRAPHIC SUMMARY OF AMERICAN AGRICULTURE.

(Graphs 1–4; maps 1–78.)

By Middleton Smith, *Bureau of Crop Estimates*, O. E. Baker, *Agriculturist, Office of Farm Management*, and R. G. Hainsworth, *Head Draftsman, Office of Farm Management.*

THE maps and graphs on the following pages, which show the geographic distribution of farms, crops, and live stock in the United States, are based on data contained in reports of the Thirteenth Census or collected by the Bureau of Crop Estimates. The tables have been prepared by the Bureau of Crop Estimates, the maps and description of the agricultural provinces by the Office of Farm Management.

The chief value of a graphic presentation of statistical facts relating to crops and live stock is that it enables the reader to locate at a glance the regions of production without a detailed study of a mass of figures. A table is inserted on each map giving the statistics, by States, for 1909 or 1910, taken from the census, and, where available, also the estimates of the Department of Agriculture for 1915. These tables, in terms of exact figures, assist in interpreting the maps; by comparing the figures for 1909 with those of 1915 an indication is obtained of the changes in acreage, production, or numbers since the last census. At the end of the table, the separate totals for the States to the east and to the west of the Mississippi River are shown.

The map of agricultural provinces (map 1) is based primarily on the geographic distribution of the principal crops and types of farming, which is in turn dependent largely upon climatic conditions. The acreage of land in crops (map 5) includes not only crops for which the census secured acreage reports but also fruits and nuts for which the census reports only the number of trees. The acreage of these fruits has been estimated on the basis of the number of trees per acre by the use of factors for each State supplied by the Office of Horticultural Investigations, Bureau of Plant Industry. The map showing rural population (map 12) represents the population outside of all incorporated places, which differs from the rural population used by the census in that the latter excluded only places of 2,500 inhabitants or more. The statistics for the map "Improved land not in crops" (map 25) were secured by subtracting the acreage of all crops from the acreage of improved land and represent throughout most of the United States approximately the acreage of improved pasture. All of the above maps are based upon unpublished census data compiled by the Office of Farm Management.

The half-page maps of the different vegetables (maps 42 to 51) include only the acreage on farms reporting 1 acre or more of the vegetable specified, and are based upon unpublished county statistics courteously supplied by the Bureau of the Census, as are also the maps of fruit trees not of bearing age. The maps showing the location, 1914, of creameries (map 71) and of cheese factories (map 72) are adapted from maps prepared by the Bureau of Animal Industry. The map showing cotton production, 1914, is based upon the report of the Bureau of the Census. With these exceptions, the maps showing the distribution of the crops are based on statistics collected by the census for the year 1909, and those of farms, farm land, and the classes of live stock represent conditions on April 15, 1910; while the tables also give the estimates of the Department of Agriculture for January 1, 1915.

THE AGRICULTURAL PROVINCES.

(See map 1.)

The United States may be divided into an eastern and a western half, characterized, broadly speaking, one by a sufficient and the other by an insufficient amount of rainfall for the successful production of crops by ordinary farming methods. The North Pacific coast and several sections in California and in the northern Rocky Mountain region constitute exceptions to this statement. The dividing line which separates the East from the West follows more or less closely the one hundredth meridian, the annual precipitation increasing from 15 inches at the Canadian boundary to about 25 inches at the Mexican line, where the evaporation is much greater. The East is a region of ordinary farming based upon annual summer crops; the West, of grazing, dry farming, winter crops in certain localities, and irrigation, with only limited areas of ordinary farming under humid conditions such as characterizes the East.

The East and the West may each be divided into five agricultural provinces. In the East, precipitation being usually sufficient, the classification is based largely on temperature and the crops grown, while in the West rainfall is the important factor. In the East the agricultural provinces extend for the most part east and west, following parallels of latitude; while in the West the provinces are determined by the mountain ranges and extend north and south. Agriculture in the East varies primarily with latitude and soils, but in the West the principal factors are altitude and rainfall. The average elevation of the eastern half of the United States is less than 1,000 feet; that of the western half, over 4,000 feet.

In the East corn is the dominant crop, constituting over one-third of the acreage and nearly 30 per cent of the value of all crops. It is grown in all the five eastern provinces, but is most important in the corn and winter-wheat belt and in the cotton belt. Along the Gulf of Mexico and the southern Atlantic coast the type of agriculture varies greatly from section to section, so that the region is not named after any crop, but is called the "Southern coast," because the warm water exerts a controlling influence upon climate and crops. There is very little cotton grown outside the cotton belt; scarcely any winter wheat in the eastern half of the United States outside the corn and winter-wheat belt, and virtually no spring wheat outside the spring-wheat province. In the East grass is of greatest importance in the hay and pasture province, where in nearly every county hay and pasture occupy 50 per cent or more of the improved land.

In the West hay is the dominant crop, contributing 44 per cent of the acreage and 30 per cent of the value of all crops in 1909, and the forage obtained by grazing is probably of almost equal value. Alfalfa is the leading hay crop in the Rocky Mountain and arid interior provinces, prairie grasses in the Great Plains province, and grains cut green on the Pacific coast. Wheat contributed 19 per cent of the value of all crops, fruit and nuts 13 per cent, oats 8 per cent, barley 6 per cent, potatoes 4 per cent, and other vegetables 4 per cent in these five western provinces. The value of all crops in the western provinces, however, constituted in 1909 less than 10 per cent of the total for the United States.

The contrast between the East and the West is not as pronounced in live stock as in crops, except that swine are largely confined to the East, while sheep are much more important in the West. There is a marked distinction, however, in the manner of management, the live stock in the East being fed in the barnyards or fields with shelter at night, while in the West the stock is principally grazed on the open range. In the East the hay and pasture province is primarily a dairy region, while the corn and winter-wheat belt is the center of the beef-cattle and swine industry. In the West, the sheep are generally located in the more arid and the cattle in the less arid regions, while in the North Pacific province, with its cool, moist climate, similar to that of the hay and pasture province, dairying is again the dominant live-stock industry.

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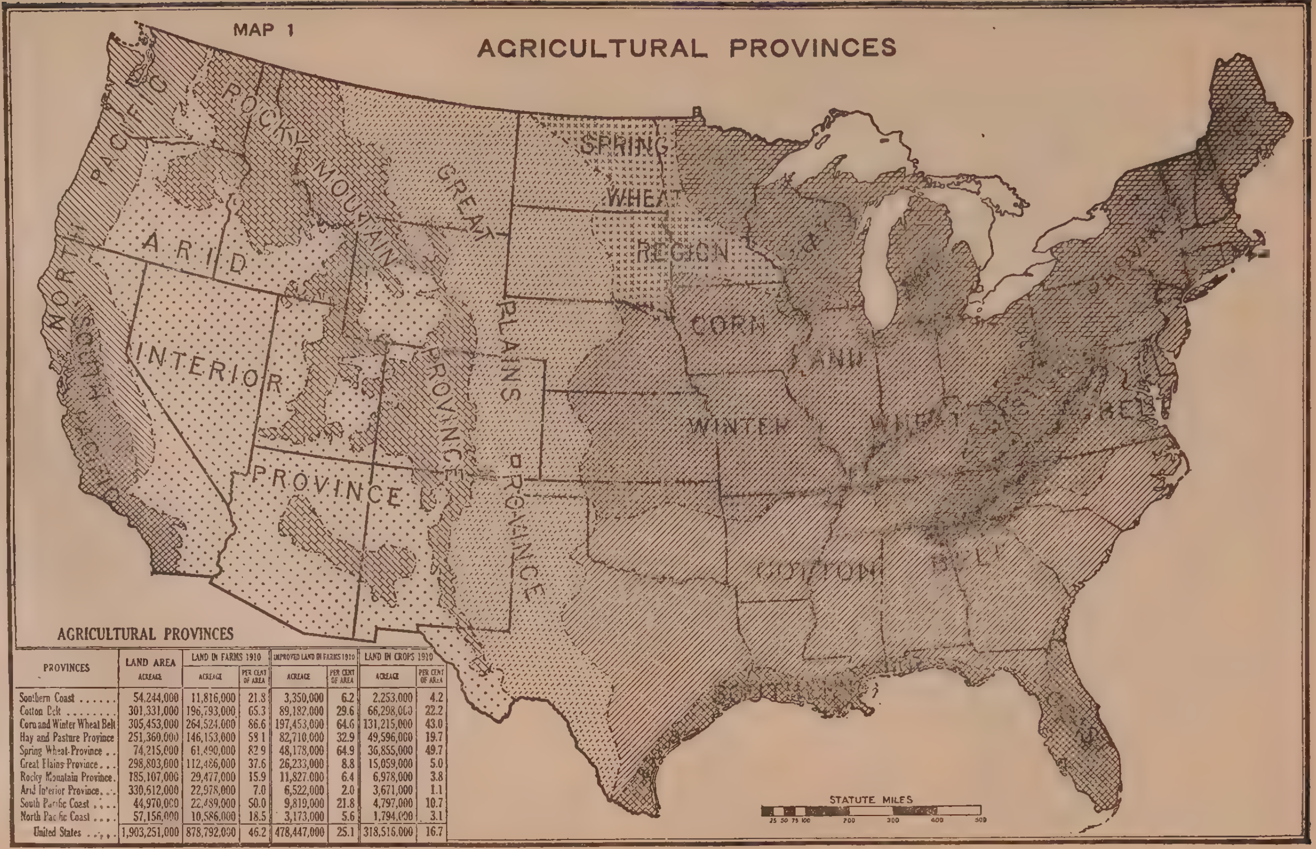
MAP 1

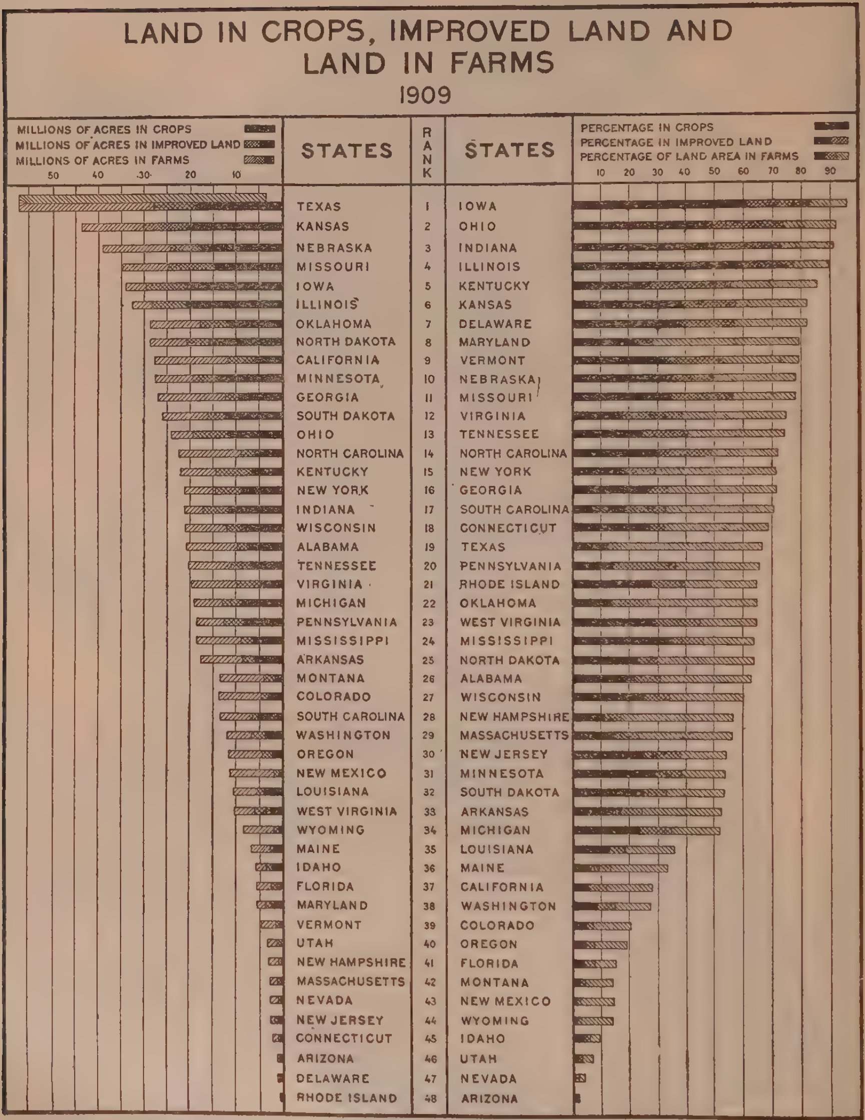
AGRICULTURAL PROVINCES



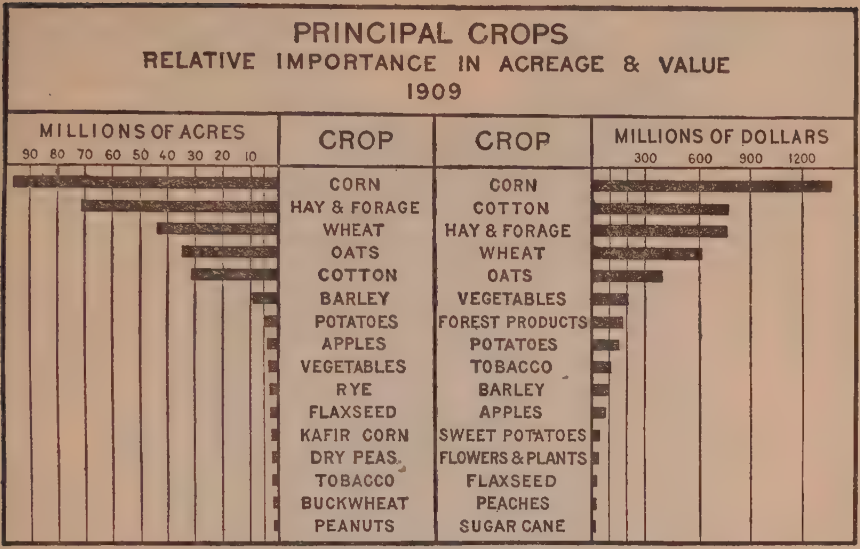
AGRICULTURAL PROVINCES

PROVINCES	LAND AREA	LAND IN FARMS 1910		IMPROVED LAND IN FARMS 1910		LAND IN CROPS 1910	
	ACREAGE	ACREAGE	PER CENT OF AREA	ACREAGE	PER CENT OF AREA	ACREAGE	PER CENT OF AREA
Southern Coast	54,244,000	11,816,000	21.8	3,350,000	6.2	2,253,000	4.2
Cotton Belt	301,331,000	196,793,000	65.3	89,182,000	29.6	66,298,000	22.2
Corn and Winter Wheat Belt	305,453,000	264,524,000	86.6	197,453,000	64.6	131,215,000	43.0
Hay and Pasture Province	251,360,000	146,153,000	58.1	82,710,000	32.9	49,596,000	19.7
Spring Wheat Province . .	74,215,000	61,490,000	82.9	48,178,000	64.9	36,855,000	49.7
Great Plains Province . . .	298,803,000	112,486,000	37.6	26,233,000	8.8	15,059,000	5.0
Rocky Mountain Province.	185,107,000	29,477,000	15.9	11,827,000	6.4	6,978,000	3.8
Arid Interior Province. . .	330,612,000	22,978,000	7.0	6,522,000	2.0	3,671,000	1.1
South Pacific Coast	44,970,000	22,489,000	50.0	9,819,000	21.8	4,797,000	10.7
North Pacific Coast	57,156,000	10,586,000	18.5	3,173,000	5.6	1,794,000	3.1
United States	1,903,251,000	878,792,000	46.2	478,447,000	25.1	318,516,000	16.7

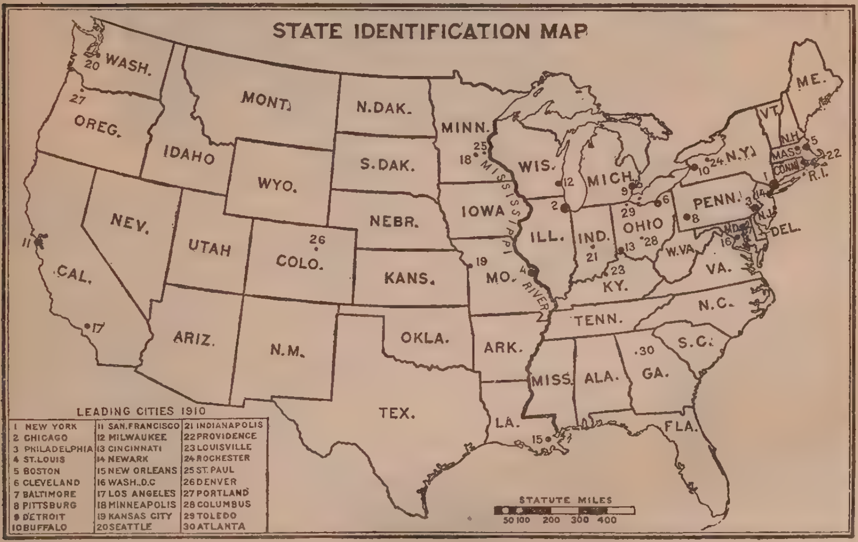
Compare with maps of cotton (map 15), winter wheat (map 17), spring wheat (map 18), and receipts from sale of dairy products (map 70).



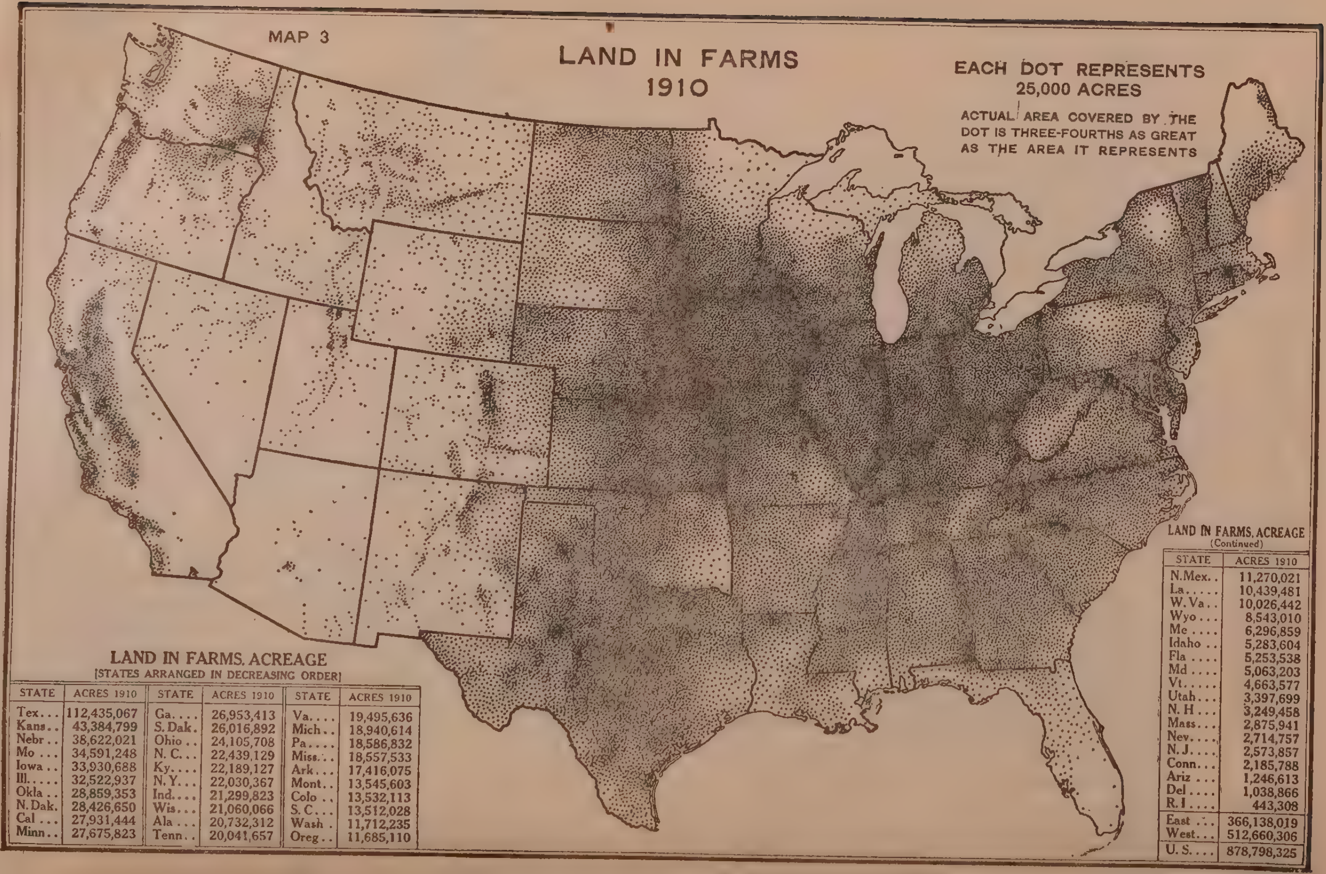
GRAPH 1.—The black section of the bar represents the area of the land in crops; the black section plus the cross lined section, the area of improved land; and the entire bar, the area of land in farms.



GRAPH 2.—Compare with maps of corn (map 13), cotton (map 15), wheat (maps 17 and 18), oats (map 21), hay (map 26), etc.



MAP 2.—Any of the maps may be compared with this map to ascertain the name of a State. The words "East" and "West" in the tables inserted on the maps refer to the States east and west of the Mississippi River, respectively.



MAP 3

LAND IN FARMS
1910

EACH DOT REPRESENTS
25,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS THREE-FOURTHS AS GREAT AS THE AREA IT REPRESENTS

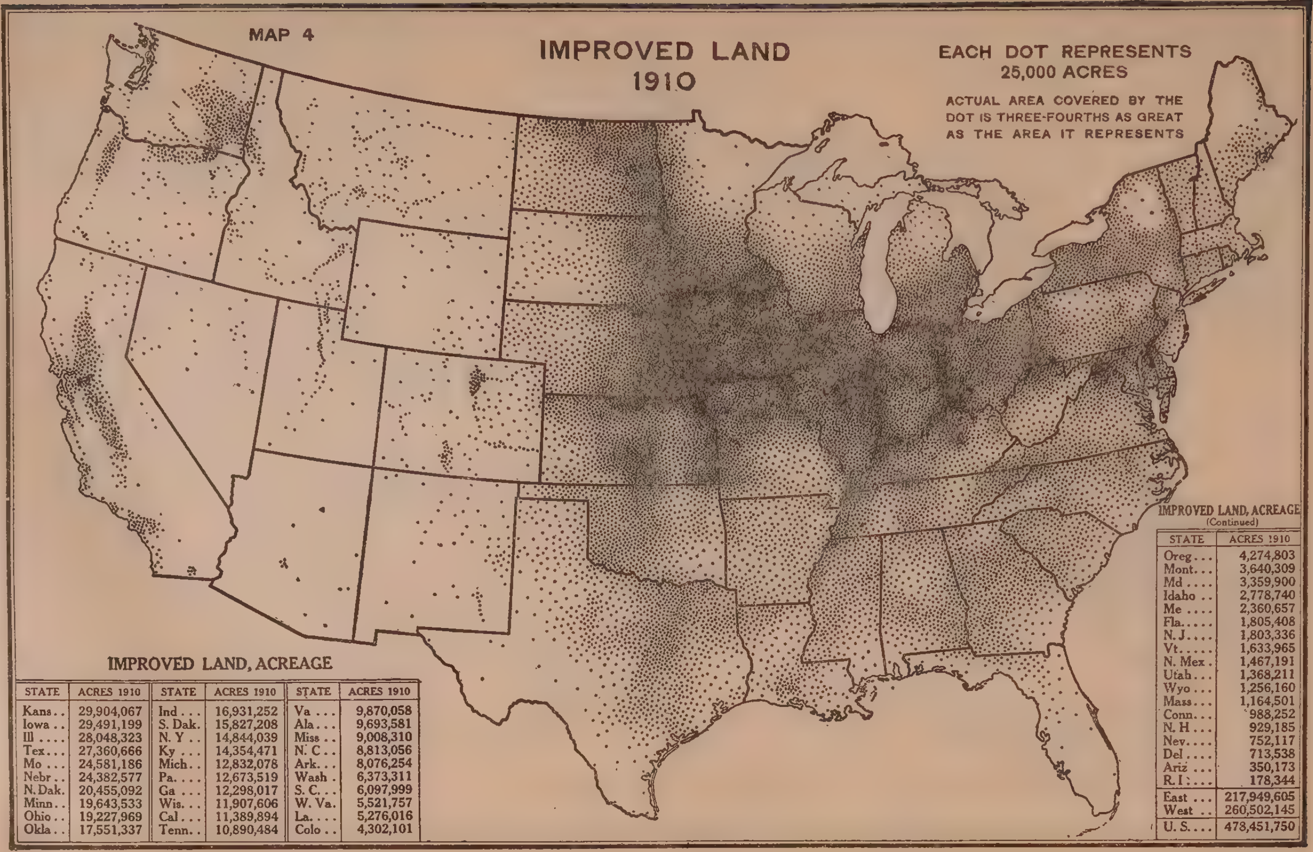
LAND IN FARMS, ACREAGE
[STATES ARRANGED IN DECREASING ORDER]

STATE	ACRES 1910	STATE	ACRES 1910	STATE	ACRES 1910
Tex. . .	112,435,067	Ga. . . .	26,953,413	Va. . . .	19,495,636
Kans. .	43,384,799	S. Dak.	26,016,892	Mich. .	18,940,614
Nebr. .	38,622,021	Ohio . .	24,105,708	Pa. . . .	18,586,832
Mo . . .	34,591,248	N. C. . .	22,439,129	Miss. . .	18,557,533
Iowa . .	33,930,688	Ky. . . .	22,189,127	Ark. . .	17,416,075
Ill.	32,522,937	N. Y. . .	22,030,367	Mont. .	13,545,603
Okla . .	28,859,353	Ind. . . .	21,299,823	Colo . .	13,532,113
N. Dak.	28,426,650	Wis. . .	21,060,066	S. C. . .	13,512,028
Cal . . .	27,931,444	Ala . . .	20,732,312	Wash .	11,712,235
Minn. .	27,675,823	Tenn. .	20,041,657	Oreg . .	11,685,110

LAND IN FARMS, ACREAGE
(Continued)

STATE	ACRES 1910
N. Mex. .	11,270,021
La.	10,439,481
W. Va. .	10,026,442
Wyo . . .	8,543,010
Me	6,296,859
Idaho . .	5,283,604
Fla	5,253,538
Md	5,063,203
Vt.	4,663,577
Utah. . .	3,397,699
N. H . . .	3,249,458
Mass. . .	2,875,941
Nev. . . .	2,714,757
N. J. . . .	2,573,857
Conn. . .	2,185,788
Ariz . . .	1,246,613
Del	1,038,866
R. I	443,308
East . . .	366,138,019
West. . .	512,660,306
U. S. . . .	878,798,325

Compare with maps of improved land (map 4) and land in crops (map 5).


MAP 4
IMPROVED LAND
1910
EACH DOT REPRESENTS
25,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS THREE-FOURTHS AS GREAT
AS THE AREA IT REPRESENTS

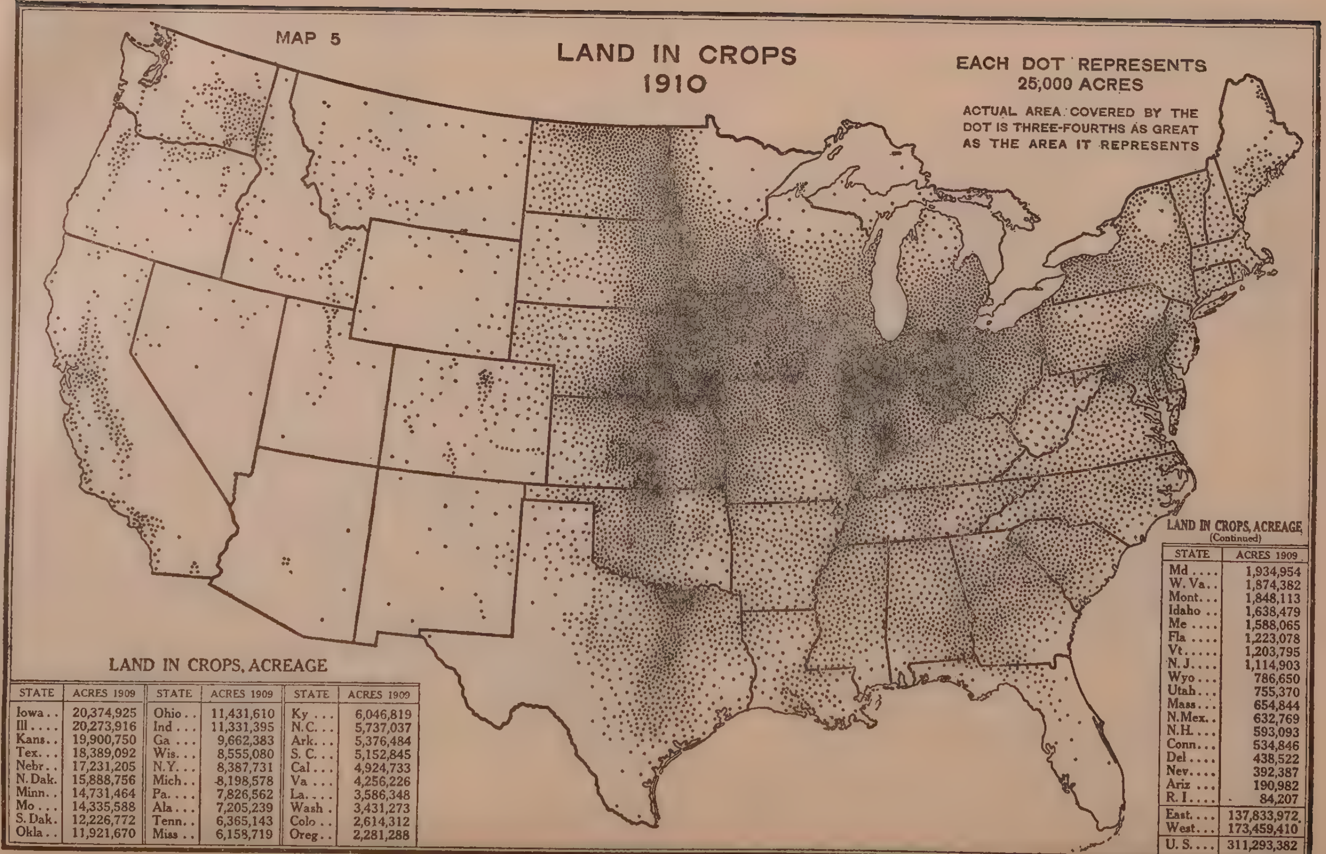
IMPROVED LAND, ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910	STATE	ACRES 1910
Kans..	29,904,067	Ind...	16,931,252	Va....	9,870,058
Iowa..	29,491,199	S. Dak.	15,827,208	Ala...	9,693,581
Ill....	28,048,323	N. Y..	14,844,039	Miss..	9,008,310
Tex....	27,360,666	Ky...	14,354,471	N. C..	8,813,056
Mo....	24,581,186	Mich..	12,832,078	Ark...	8,076,254
Nebr..	24,382,577	Pa....	12,673,519	Wash.	6,373,311
N. Dak.	20,455,092	Ga....	12,298,017	S. C...	6,097,999
Minn..	19,643,533	Wis...	11,907,606	W. Va.	5,521,757
Ohio..	19,227,969	Cal...	11,389,894	La....	5,276,016
Okla..	17,551,337	Tenn..	10,890,484	Colo..	4,302,101

IMPROVED LAND, ACREAGE
(Continued)

STATE	ACRES 1910
Oreg...	4,274,803
Mont...	3,640,309
Md....	3,359,900
Idaho..	2,778,740
Me....	2,360,657
Fla....	1,805,408
N. J....	1,803,336
Vt.....	1,633,965
N. Mex.	1,467,191
Utah...	1,368,211
Wyo...	1,256,160
Mass...	1,164,501
Conn...	988,252
N. H...	929,185
Nev....	752,117
Del....	713,538
Ariz...	350,173
R. I....	178,344
East...	217,949,605
West..	260,502,145
U. S....	478,451,750

Compare with map of value of farm property (map 9).



LAND IN CROPS 1910

EACH DOT REPRESENTS 25,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS THREE-FOURTHS AS GREAT AS THE AREA IT REPRESENTS

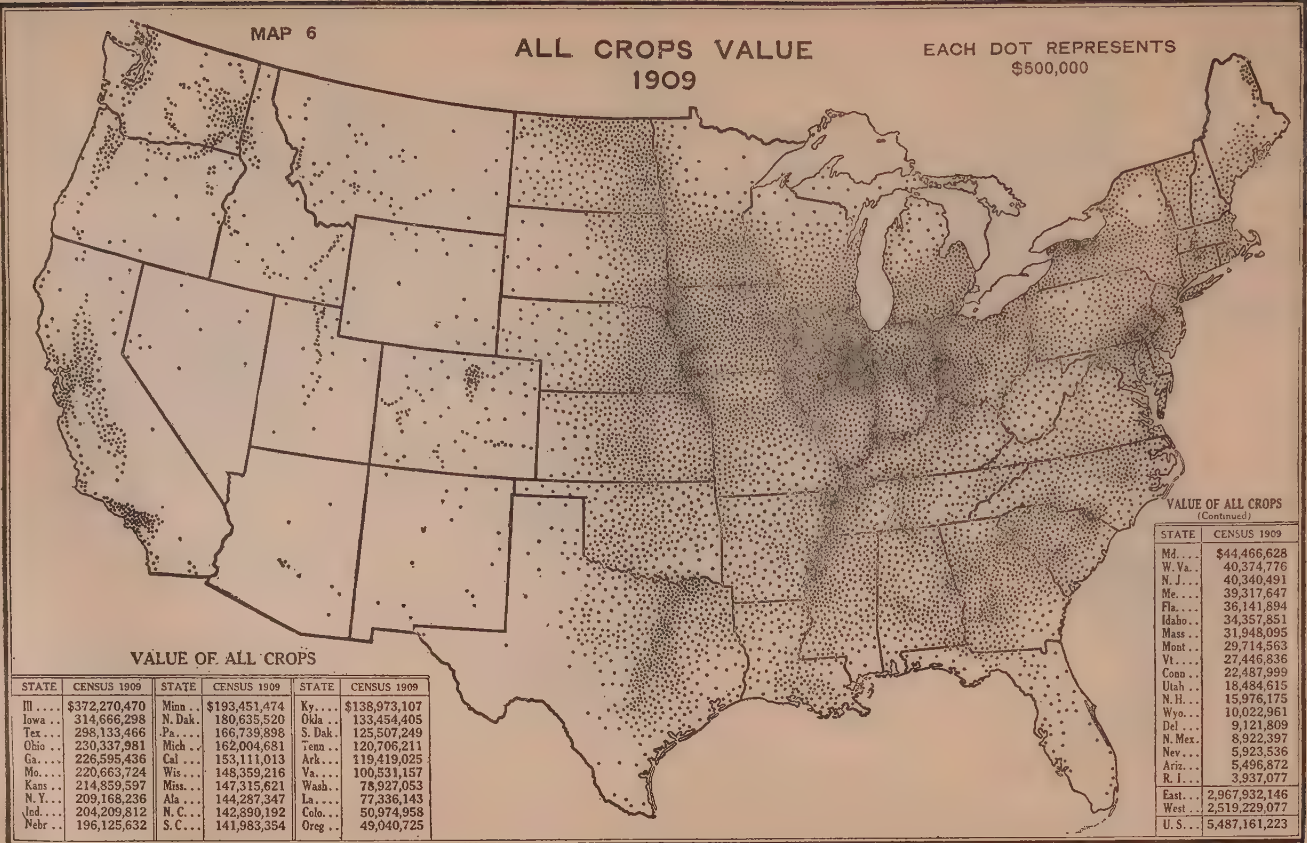
LAND IN CROPS, ACREAGE

STATE	ACRES 1909	STATE	ACRES 1909	STATE	ACRES 1909
Iowa . .	20,374,925	Ohio . .	11,431,610	Ky . . .	6,046,819
Ill	20,273,916	Ind . . .	11,331,395	N.C. . .	5,737,037
Kans. .	19,900,750	Ga . . .	9,662,383	Ark. . .	5,376,484
Tex. . .	18,389,092	Wis. . .	8,555,080	S. C. . .	5,152,845
Nebr . .	17,231,205	N.Y. . .	8,387,731	Cal . . .	4,924,733
N. Dak.	15,888,756	Mich . .	8,198,578	Va . . .	4,256,226
Minn. .	14,731,464	Pa. . . .	7,826,562	La. . . .	3,586,348
Mo . . .	14,335,588	Ala . . .	7,205,239	Wash .	3,431,273
S. Dak.	12,226,772	Tenn. .	6,365,143	Colo . .	2,614,312
Okla . .	11,921,670	Miss . .	6,158,719	Oreg . .	2,281,288

LAND IN CROPS, ACREAGE (Continued)

STATE	ACRES 1909
Md	1,934,954
W. Va. .	1,874,382
Mont. . .	1,848,113
Idaho . .	1,638,479
Me	1,588,065
Fla	1,223,078
Vt.	1,203,795
N. J. . . .	1,114,903
Wyo . . .	786,650
Utah . . .	755,370
Mass . . .	654,844
N.Mex. .	632,769
N.H. . . .	593,093
Conn. . .	534,846
Del	438,522
Nev. . . .	392,387
Ariz . . .	190,982
R. I. . . .	84,207
East. . . .	137,833,972
West. . .	173,459,410
U. S. . . .	311,293,382

Compare with map of agricultural provinces (map 1).



VALUE OF ALL CROPS

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Ill. . . .	$372,270,470	Minn . .	$193,451,474	Ky. . . .	$138,973,107
Iowa . .	314,666,298	N. Dak.	180,635,520	Okla . .	133,454,405
Tex . . .	298,133,466	Pa. . . .	166,739,898	S. Dak.	125,507,249
Ohio . .	230,337,981	Mich . .	162,004,681	Tenn . .	120,706,211
Ga. . . .	226,595,436	Cal . . .	153,111,013	Ark . . .	119,419,025
Mo. . . .	220,663,724	Wis . . .	148,359,216	Va. . . .	100,531,157
Kans . .	214,859,597	Miss. . .	147,315,621	Wash. .	78,927,053
N. Y. . .	209,168,236	Ala . . .	144,287,347	La. . . .	77,336,143
Ind. . . .	204,209,812	N. C. . .	142,890,192	Colo. . .	50,974,958
Nebr . .	196,125,632	S. C. . .	141,983,354	Oreg . .	49,040,725

VALUE OF ALL CROPS
(Continued)

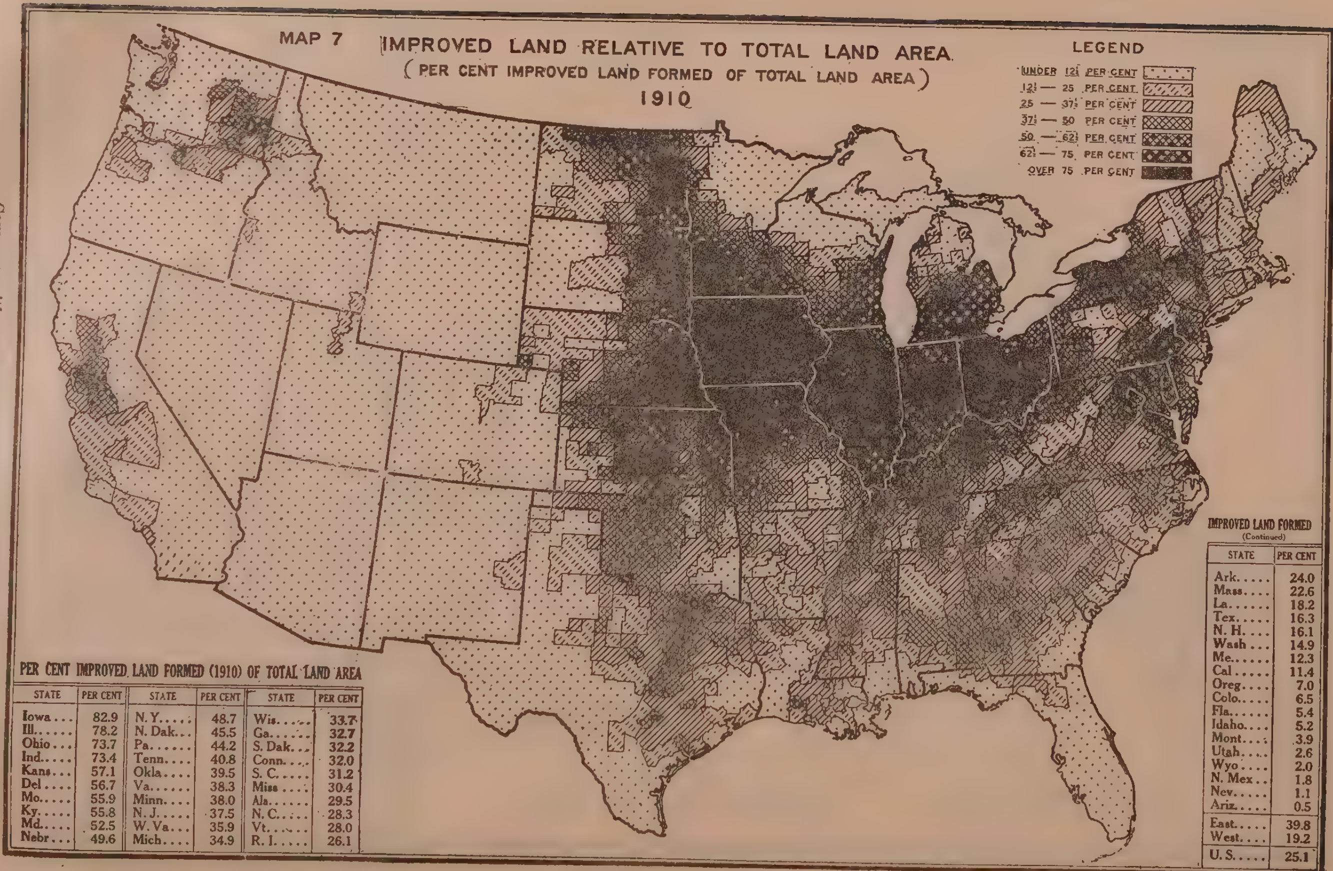
STATE	CENSUS 1909
Md. . . .	$44,466,628
W. Va. .	40,374,776
N. J. . .	40,340,491
Me. . . .	39,317,647
Fla. . . .	36,141,894
Idaho . .	34,357,851
Mass . .	31,948,095
Mont . .	29,714,563
Vt. . . .	27,446,836
Conn . .	22,487,999
Utah . .	18,484,615
N. H. . .	15,976,175
Wyo. . .	10,022,961
Del . . .	9,121,809
N. Mex.	8,922,397
Nev . . .	5,923,536
Ariz. . .	5,496,872
R. I. . .	3,937,077
East. . .	2,967,932,146
West . .	2,519,229,077
U. S. . .	5,487,161,223

Compare with map of land in crops (map 5) and value of farm property (map 9).

MAP 7 IMPROVED LAND RELATIVE TO TOTAL LAND AREA.

(PER CENT IMPROVED LAND FORMED OF TOTAL LAND AREA)

1910



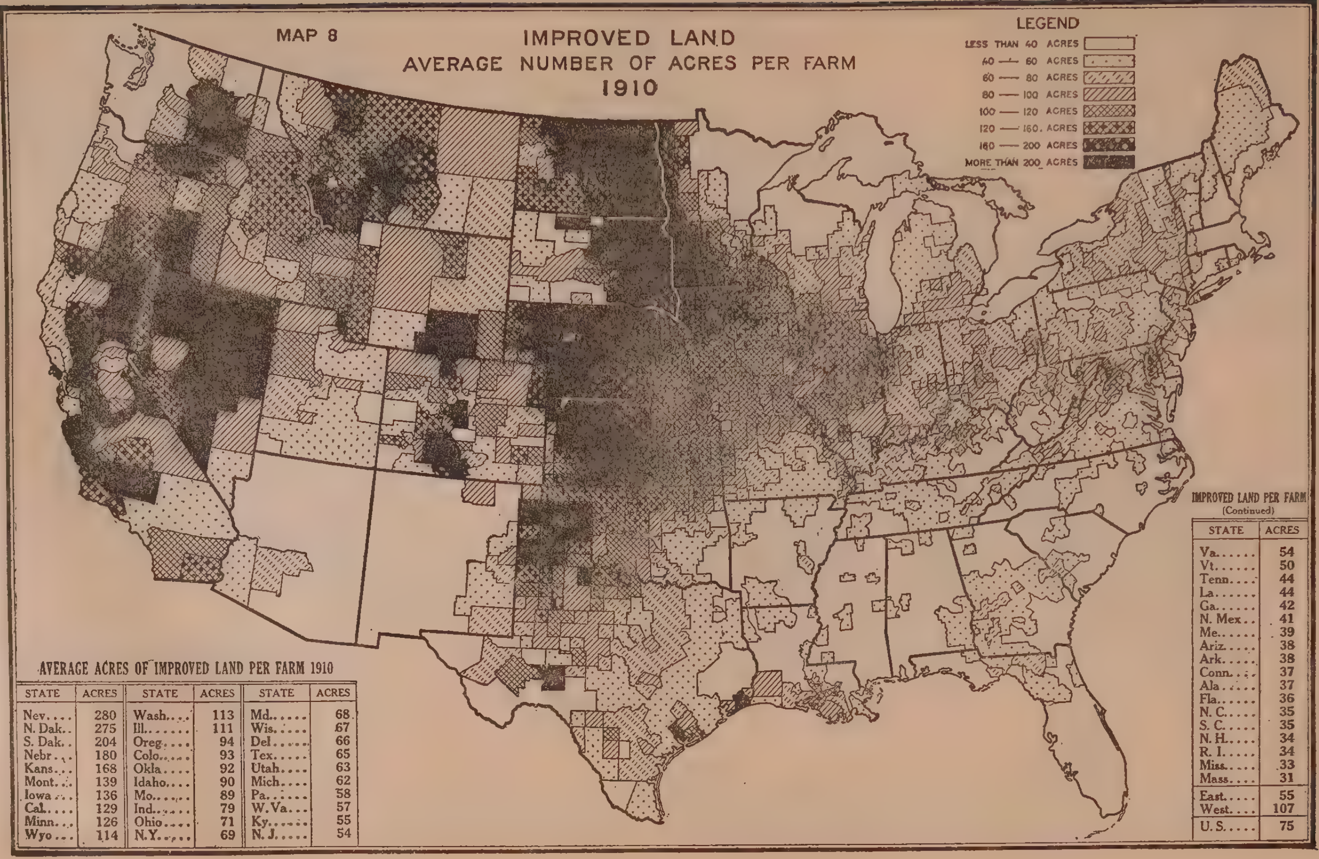
PER CENT IMPROVED LAND FORMED (1910) OF TOTAL LAND AREA

STATE	PER CENT	STATE	PER CENT	STATE	PER CENT
Iowa	82.9	N. Y.	48.7	Wis.	33.7
Ill.	78.2	N. Dak.	45.5	Ga.	32.7
Ohio	73.7	Pa.	44.2	S. Dak.	32.2
Ind.	73.4	Tenn.	40.8	Conn.	32.0
Kans.	57.1	Okla.	39.5	S. C.	31.2
Del.	56.7	Va.	38.3	Miss.	30.4
Mo.	55.9	Minn.	38.0	Ala.	29.5
Ky.	55.8	N. J.	37.5	N. C.	28.3
Md.	52.5	W. Va.	35.9	Vt.	28.0
Nebr.	49.6	Mich.	34.9	R. I.	26.1

IMPROVED LAND FORMED (Continued)

STATE	PER CENT
Ark.	24.0
Mass.	22.6
La.	18.2
Tex.	16.3
N. H.	16.1
Wash.	14.9
Me.	12.3
Cal.	11.4
Oreg.	7.0
Colo.	6.5
Fla.	5.4
Idaho	5.2
Mont.	3.9
Utah	2.6
Wyo.	2.0
N. Mex.	1.8
Nev.	1.1
Ariz.	0.5
East	39.8
West	19.2
U. S.	25.1

Compare with map of agricultural provinces (map 1).



MAP 8

IMPROVED LAND
AVERAGE NUMBER OF ACRES PER FARM
1910

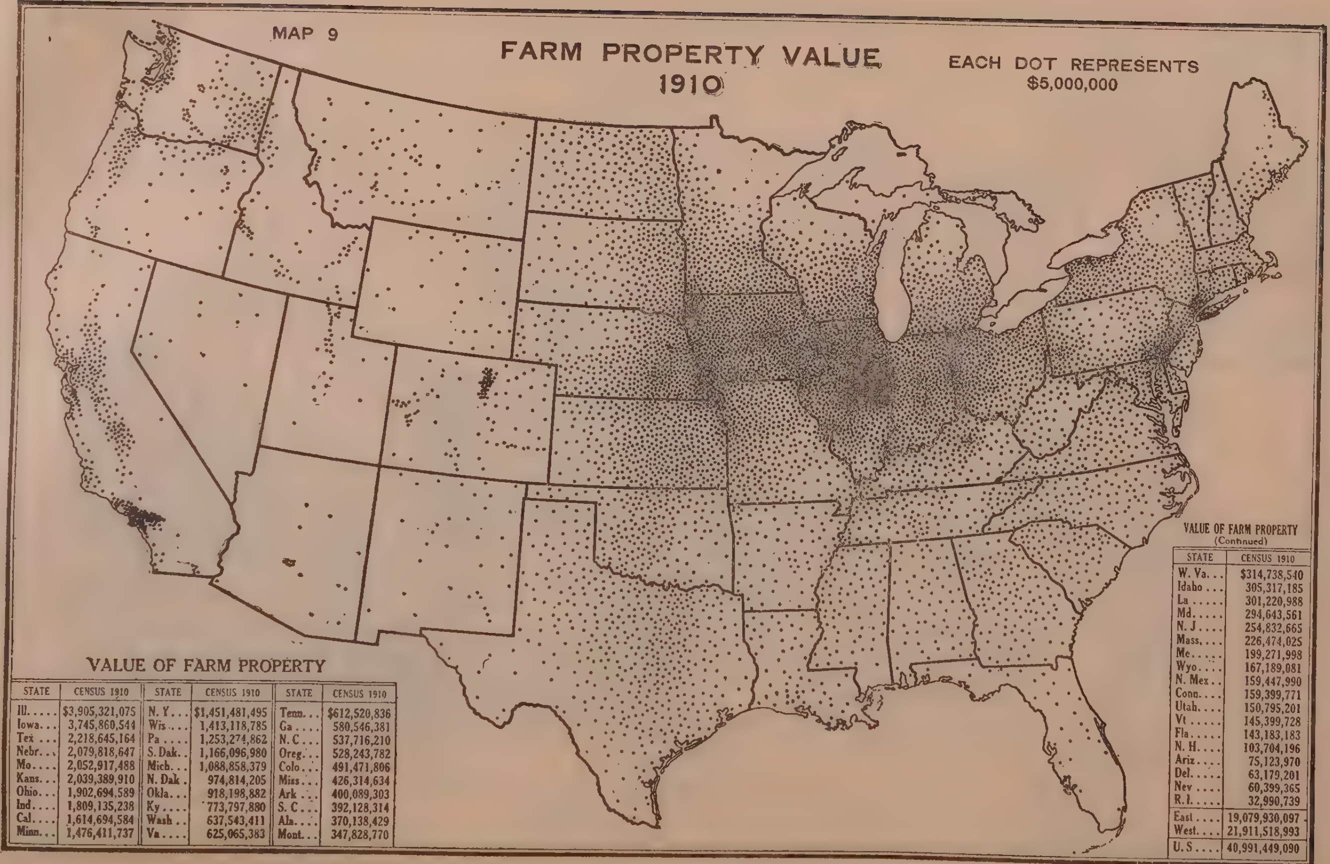
AVERAGE ACRES OF IMPROVED LAND PER FARM 1910

STATE	ACRES	STATE	ACRES	STATE	ACRES
Nev.	280	Wash.	113	Md.	68
N. Dak.	275	Ill.	111	Wis.	67
S. Dak.	204	Oreg.	94	Del.	66
Nebr.	180	Colo.	93	Tex.	65
Kans.	168	Okla.	92	Utah	63
Mont.	139	Idaho	90	Mich.	62
Iowa	136	Mo.	89	Pa.	58
Cal.	129	Ind.	79	W. Va.	57
Minn.	126	Ohio	71	Ky.	55
Wyo.	114	N.Y.	69	N. J.	54

IMPROVED LAND PER FARM
(Continued)

STATE	ACRES
Va.	54
Vt.	50
Tenn.	44
La.	44
Ga.	42
N. Mex.	41
Me.	39
Ariz.	38
Ark.	38
Conn.	37
Ala.	37
Fla.	36
N. C.	35
S. C.	35
N. H.	34
R. I.	34
Miss.	33
Mass.	31
East.	55
West.	107
U. S.	75

Compare with maps of spring wheat (map 18), winter wheat (map 17), hay and forage (map 26), corn (map 13), and cotton (map 15).



MAP 9

FARM PROPERTY VALUE 1910

EACH DOT REPRESENTS $5,000,000

VALUE OF FARM PROPERTY

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Ill.	$3,905,321,075	N. Y. . . .	$1,451,481,495	Tenn. . .	$612,520,836
Iowa. . .	3,745,860,544	Wis. . . .	1,413,118,785	Ga	580,546,381
Tex . . .	2,218,645,164	Pa	1,253,274,862	N. C . . .	537,716,210
Nebr. . .	2,079,818,647	S. Dak. .	1,166,096,980	Oreg. . .	528,243,782
Mo. . . .	2,052,917,488	Mich. . .	1,088,858,379	Colo . . .	491,471,806
Kans. . .	2,039,389,910	N. Dak .	974,814,205	Miss . . .	426,314,634
Ohio. . .	1,902,694,589	Okla. . .	918,198,882	Ark . . .	400,089,303
Ind. . . .	1,809,135,238	Ky	773,797,880	S. C . . .	392,128,314
Cal. . . .	1,614,694,584	Wash . .	637,543,411	Ala. . . .	370,138,429
Minn. . .	1,476,411,737	Va	625,065,383	Mont. . .	347,828,770

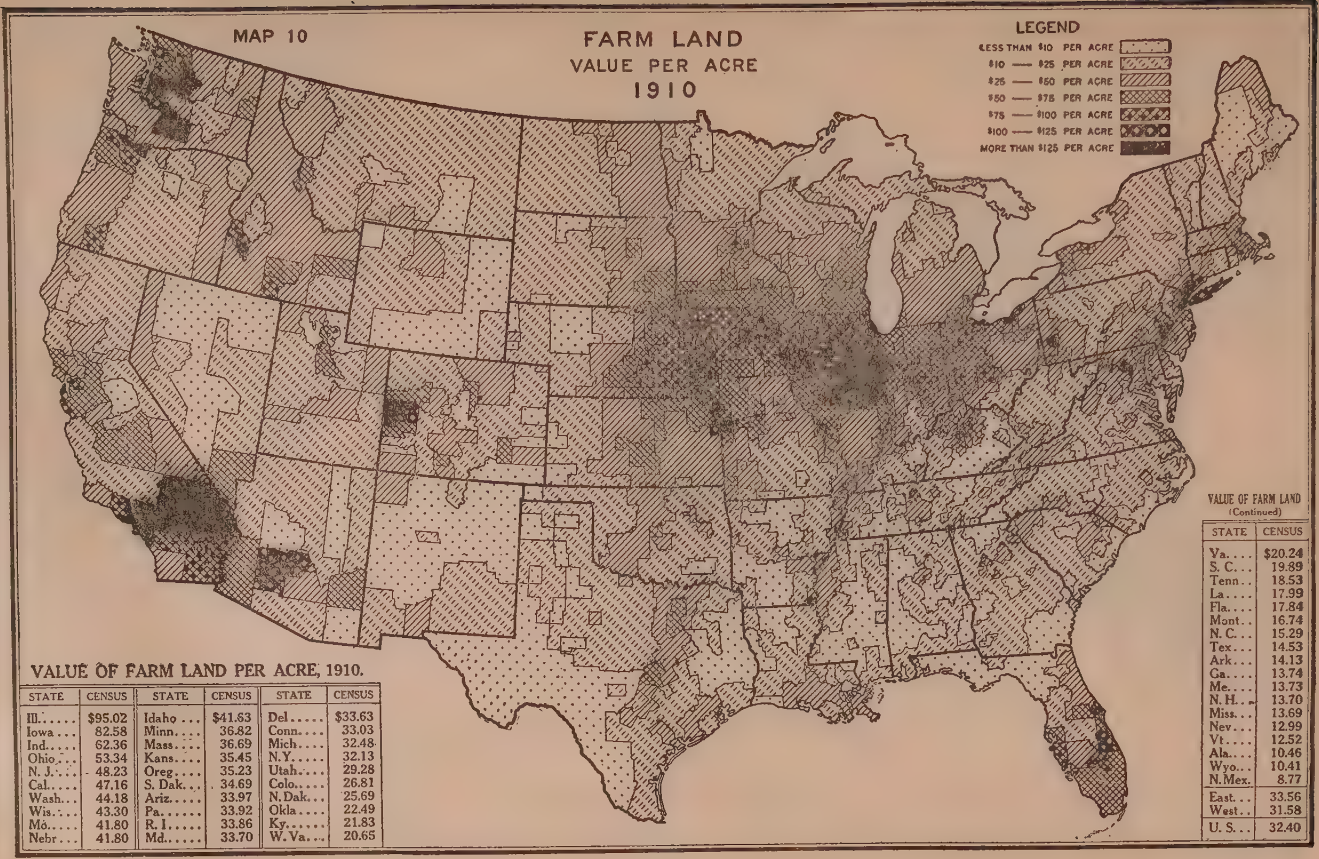
VALUE OF FARM PROPERTY
(Continued)

STATE	CENSUS 1910
W. Va. . .	$314,738,540
Idaho . . .	305,317,185
La	301,220,988
Md.	294,643,561
N. J	254,832,665
Mass. . . .	226,474,025
Me.	199,271,998
Wyo. . . .	167,189,081
N. Mex . .	159,447,990
Conn. . . .	159,399,771
Utah. . . .	150,795,201
Vt	145,399,728
Fla.	143,183,183
N. H. . . .	103,704,196
Ariz. . . .	75,123,970
Del.	63,179,201
Nev	60,399,365
R. I.	32,990,739
East	19,079,930,097
West. . . .	21,911,518,993
U. S	40,991,449,090

Compare with map of value of farm land per acre (map 10).

MAP 10

FARM LAND
VALUE PER ACRE
1910



VALUE OF FARM LAND PER ACRE, 1910.

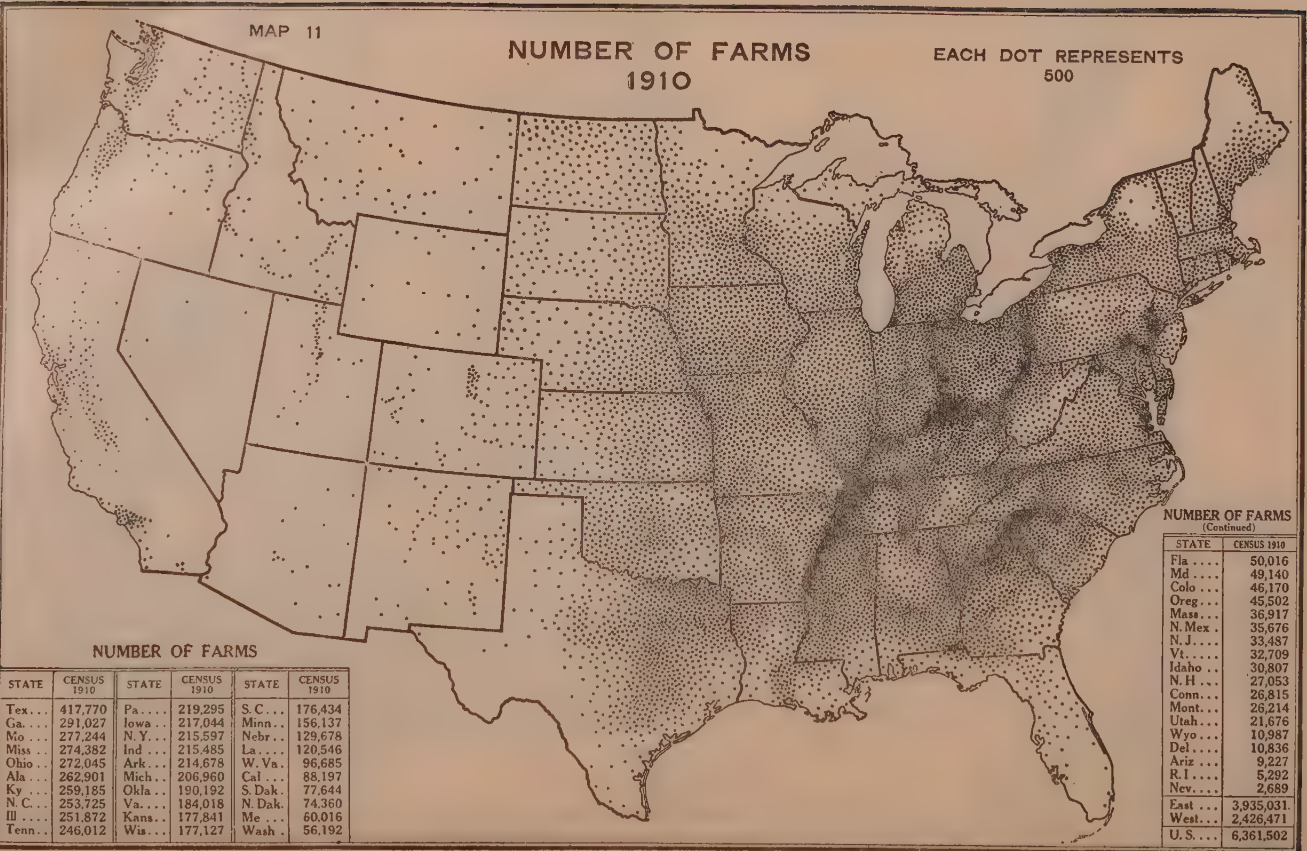
STATE	CENSUS	STATE	CENSUS	STATE	CENSUS
Ill.	$95.02	Idaho	$41.63	Del.	$33.63
Iowa	82.58	Minn.	36.82	Conn.	33.03
Ind.	62.36	Mass.	36.69	Mich.	32.48
Ohio	53.34	Kans.	35.45	N.Y.	32.13
N. J.	48.23	Oreg.	35.23	Utah	29.28
Cal.	47.16	S. Dak.	34.69	Colo.	26.81
Wash.	44.18	Ariz.	33.97	N. Dak.	25.69
Wis.	43.30	Pa.	33.92	Okla.	22.49
Mo.	41.80	R. I.	33.86	Ky.	21.83
Nebr.	41.80	Md.	33.70	W. Va.	20.65

VALUE OF FARM LAND
(Continued)

STATE	CENSUS
Va.	$20.24
S. C.	19.89
Tenn.	18.53
La.	17.99
Fla.	17.84
Mont.	16.74
N. C.	15.29
Tex.	14.53
Ark.	14.13
Ga.	13.74
Me.	13.73
N. H.	13.70
Miss.	13.69
Nev.	12.99
Vt.	12.52
Ala.	10.46
Wyo.	10.41
N. Mex.	8.77
East.	33.56
West.	31.58
U. S.	32.40

Compare with maps of agricultural provinces (map 1), corn (map 13), cotton (map 15), and fruits and nuts (map 52).

MAP 11



NUMBER OF FARMS
1910

NUMBER OF FARMS

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Tex. . .	417,770	Pa. . . .	219,295	S. C. . .	176,434
Ga. . . .	291,027	Iowa . .	217,044	Minn. .	156,137
Mo . . .	277,244	N. Y. . .	215,597	Nebr. .	129,678
Miss . .	274,382	Ind . . .	215,485	La. . . .	120,546
Ohio . .	272,045	Ark . . .	214,678	W. Va. .	96,685
Ala . . .	262,901	Mich . .	206,960	Cal . . .	88,197
Ky . . .	259,185	Okla . .	190,192	S. Dak .	77,644
N. C. . .	253,725	Va. . . .	184,018	N. Dak.	74,360
Ill	251,872	Kans . .	177,841	Me . . .	60,016
Tenn . .	246,012	Wis . . .	177,127	Wash .	56,192

NUMBER OF FARMS
(Continued)

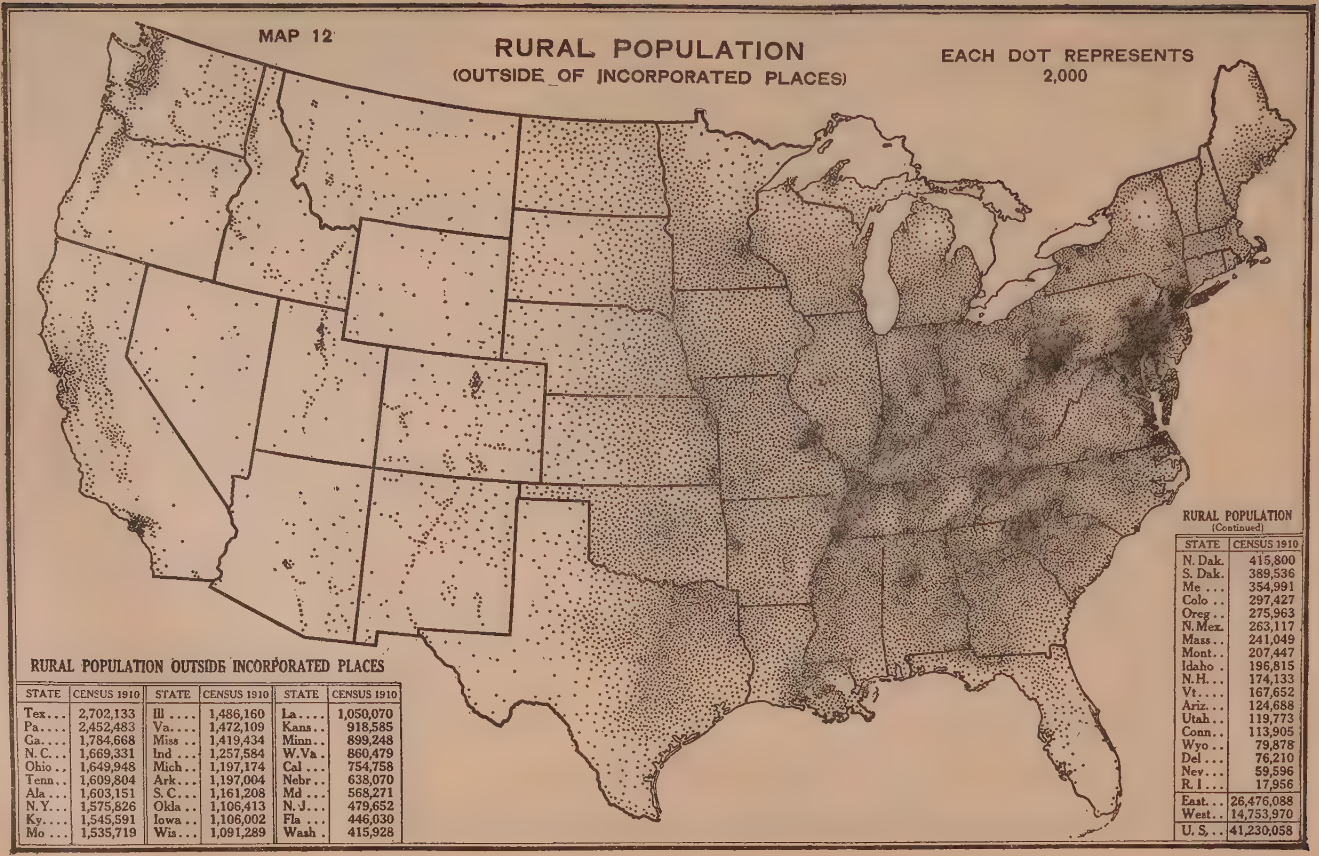
STATE	CENSUS 1910
Fla	50,016
Md	49,140
Colo . . .	46,170
Oreg . . .	45,502
Mass . . .	36,917
N. Mex .	35,676
N. J. . . .	33,487
Vt.	32,709
Idaho . .	30,807
N. H . . .	27,053
Conn. . .	26,815
Mont. . .	26,214
Utah . . .	21,676
Wyo . . .	10,987
Del. . . .	10,836
Ariz . . .	9,227
R. I	5,292
Nev. . . .	2,689
East . . .	3,935,031
West. . .	2,426,471
U. S. . . .	6,361,502

Compare with maps of rural population outside incorporated places (map 12), acres of improved land per farm (map 8), and land in crops (map 5).

MAP 12

RURAL POPULATION
(OUTSIDE OF INCORPORATED PLACES)

EACH DOT REPRESENTS 2,000



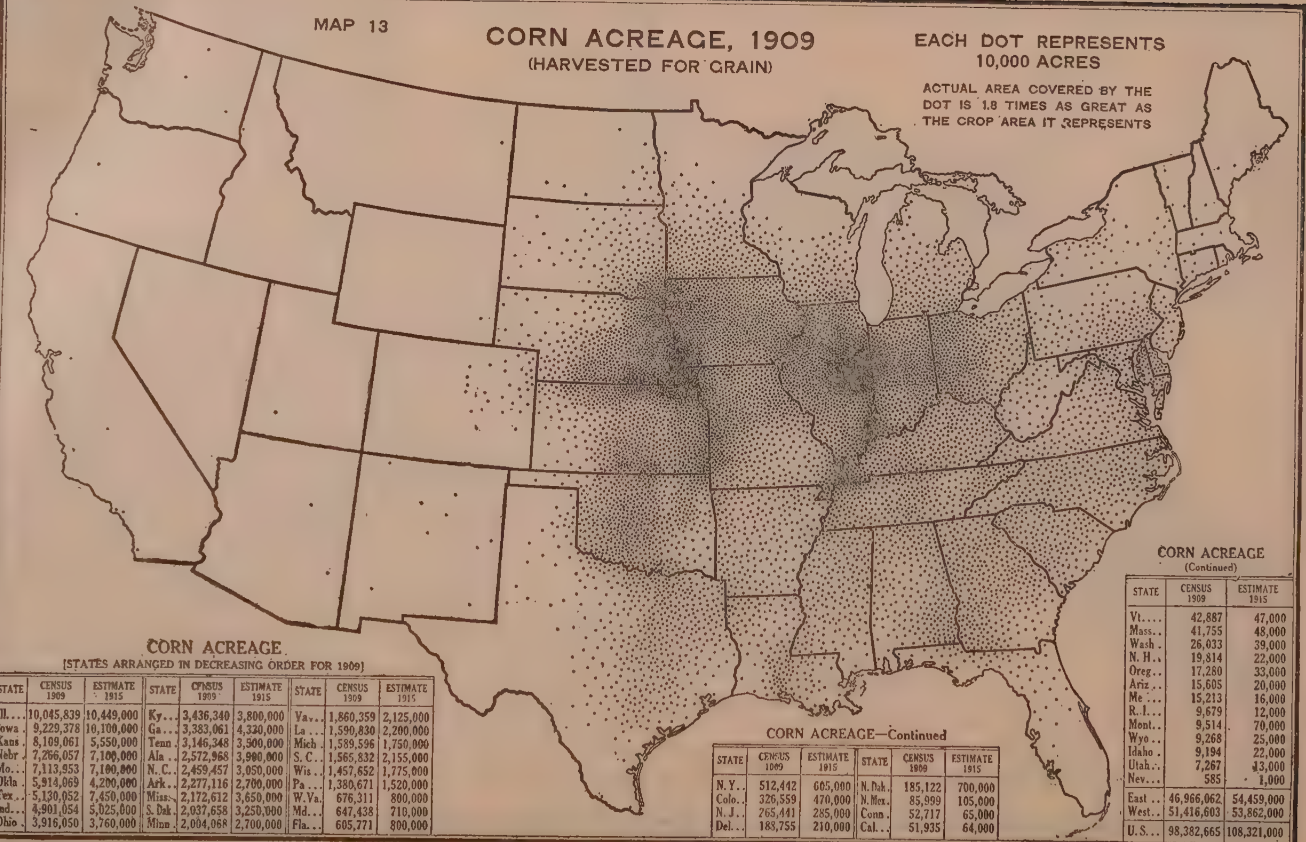
RURAL POPULATION OUTSIDE INCORPORATED PLACES

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Tex...	2,702,133	Ill	1,486,160	La....	1,050,070
Pa....	2,452,483	Va....	1,472,109	Kans..	918,585
Ga....	1,784,668	Miss ..	1,419,434	Minn..	899,248
N. C...	1,669,331	Ind ...	1,257,584	W.Va.	860,479
Ohio ..	1,649,948	Mich..	1,197,174	Cal ...	754,758
Tenn..	1,609,804	Ark...	1,197,004	Nebr..	638,070
Ala ...	1,603,151	S. C...	1,161,208	Md ...	568,271
N. Y...	1,575,826	Okla ..	1,106,413	N. J...	479,652
Ky....	1,545,591	Iowa ..	1,106,002	Fla ...	446,030
Mo ...	1,535,719	Wis...	1,091,289	Wash .	415,928

RURAL POPULATION
(Continued)

STATE	CENSUS 1910
N. Dak.	415,800
S. Dak.	389,536
Me ...	354,991
Colo ..	297,427
Oreg ..	275,963
N. Mex.	263,117
Mass ..	241,049
Mont ..	207,447
Idaho .	196,815
N.H...	174,133
Vt....	167,652
Ariz...	124,688
Utah ..	119,773
Conn..	113,905
Wyo ..	79,878
Del ...	76,210
Nev...	59,596
R. I...	17,956
East...	26,476,088
West..	14,753,970
U. S...	41,230,058

Compare with map of value of farm property (map 9).



MAP 13

CORN ACREAGE, 1909
(HARVESTED FOR GRAIN)

EACH DOT REPRESENTS 10,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 1.8 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

CORN ACREAGE.
[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Ill. . . .	10,045,839	10,449,000	Ky. . .	3,436,340	3,800,000	Va. . .	1,860,359	2,125,000
Iowa .	9,229,378	10,100,000	Ga. . .	3,383,061	4,330,000	La . . .	1,590,830	2,200,000
Kans .	8,109,061	5,550,000	Tenn .	3,146,348	3,500,000	Mich .	1,589,596	1,750,000
Nebr .	7,266,057	7,100,000	Ala . .	2,572,968	3,900,000	S. C. .	1,565,832	2,155,000
Mo. . .	7,113,953	7,100,000	N. C. .	2,459,457	3,050,000	Wis . .	1,457,652	1,775,000
Okla .	5,914,069	4,200,000	Ark . .	2,277,116	2,700,000	Pa . . .	1,380,671	1,520,000
Tex . .	5,130,052	7,450,000	Miss. .	2,172,612	3,650,000	W. Va.	676,311	800,000
Ind. . .	4,901,054	5,025,000	S. Dak .	2,037,658	3,250,000	Md. . .	647,438	710,000
Ohio .	3,916,050	3,760,000	Minn .	2,004,068	2,700,000	Fla. . .	605,771	800,000

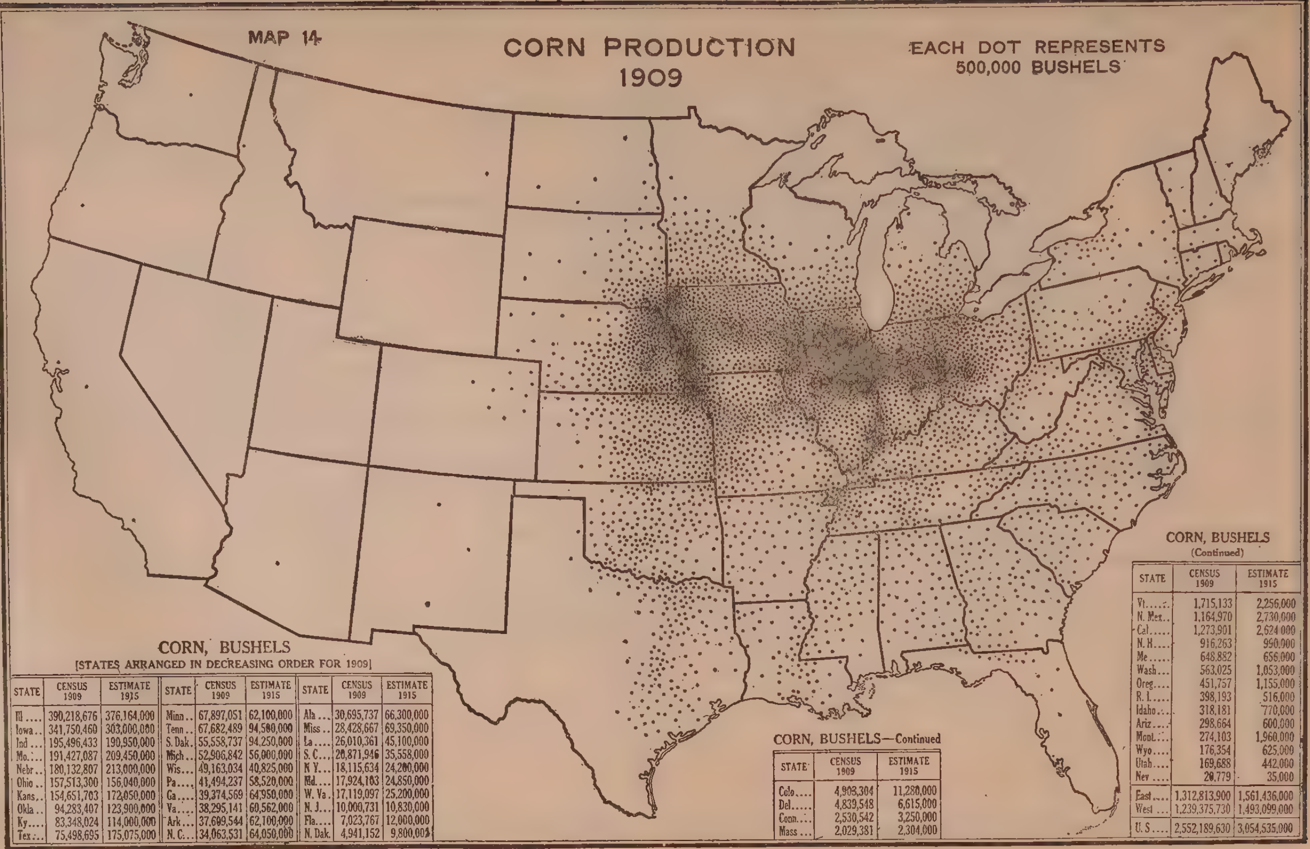
CORN ACREAGE—Continued

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N. Y. .	512,442	605,000	N. Dak.	185,122	700,000
Colo. .	326,559	470,000	N. Mex.	85,999	105,000
N. J. .	265,441	285,000	Conn.	52,717	65,000
Del. . .	188,755	210,000	Cal. . .	51,935	64,000

CORN ACREAGE
(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Vt. . . .	42,887	47,000
Mass. .	41,755	48,000
Wash .	26,033	39,000
N. H. .	19,814	22,000
Oreg. .	17,280	33,000
Ariz . .	15,605	20,000
Me . . .	15,213	16,000
R. I. . .	9,679	12,000
Mont. .	9,514	70,000
Wyo . .	9,268	25,000
Idaho .	9,194	22,000
Utah . .	7,267	13,000
Nev. . .	585	1,000
East . .	46,966,062	54,459,000
West . .	51,416,603	53,862,000
U. S. . .	98,382,665	108,321,000

Compare with maps of swine (map 73), steers and bulls (map 68), and Kafir corn (map 37).



MAP 14

CORN PRODUCTION
1909

EACH DOT REPRESENTS
500,000 BUSHELS

CORN, BUSHELS

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Ill....	390,218,676	376,164,000	Minn..	67,897,051	62,100,000	Ala...	30,695,737	66,300,000
Iowa..	341,750,460	303,000,000	Tenn..	67,682,489	94,500,000	Miss..	28,428,667	69,350,000
Ind...	195,496,433	190,950,000	S. Dak.	55,558,737	94,250,000	La....	26,010,361	45,100,000
Mo....	191,427,087	209,450,000	Mich..	52,906,842	56,000,000	S. C...	20,871,946	35,558,000
Nebr..	180,132,807	213,000,000	Wis...	49,163,034	40,825,000	N. Y...	18,115,634	24,200,000
Ohio..	157,513,300	156,040,000	Pa....	41,494,237	58,520,000	Md....	17,924,103	24,850,000
Kans..	154,651,703	172,050,000	Ga....	39,374,569	64,950,000	W. Va.	17,119,097	25,200,000
Okla..	94,283,407	123,900,000	Va....	38,295,141	60,562,000	N. J...	10,000,731	10,830,000
Ky....	83,348,024	114,000,000	Ark...	37,609,544	62,100,000	Fla....	7,023,767	12,000,000
Tex...	75,498,695	175,075,000	N. C...	34,063,531	64,050,000	N. Dak.	4,941,152	9,800,000

CORN, BUSHELS—Continued

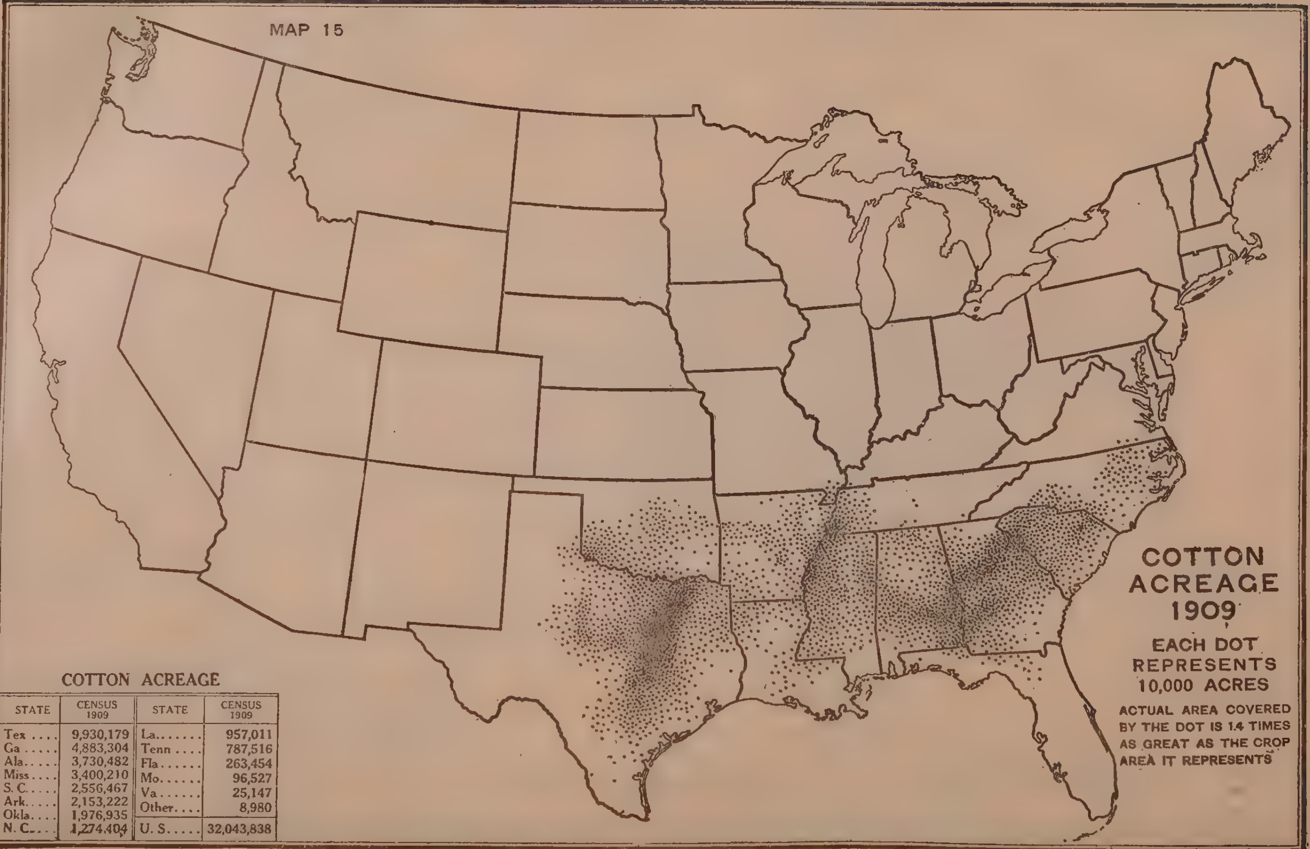
STATE	CENSUS 1909	ESTIMATE 1915
Colo....	4,903,304	11,280,000
Del.....	4,839,548	6,615,000
Conn....	2,530,542	3,250,000
Mass...	2,029,381	2,304,000

CORN, BUSHELS
(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Vt.....	1,715,133	2,256,000
N. Mex..	1,164,970	2,730,000
Cal.....	1,273,901	2,624,000
N. H....	916,263	990,000
Me.....	648,882	656,000
Wash...	563,025	1,053,000
Oreg....	451,757	1,155,000
R. I.....	398,193	516,000
Idaho....	318,181	770,000
Ariz....	298,664	600,000
Mont....	274,103	1,960,000
Wyo....	176,354	625,000
Utah....	169,688	442,000
Nev....	20,779	35,000
East....	1,312,813,900	1,561,436,000
West...	1,239,375,730	1,493,099,000
U. S....	2,552,189,630	3,054,535,000

Compare with maps of corn (map 13) and value of farm property (map 9).

MAP 15



COTTON ACREAGE 1909

EACH DOT REPRESENTS 10,000 ACRES

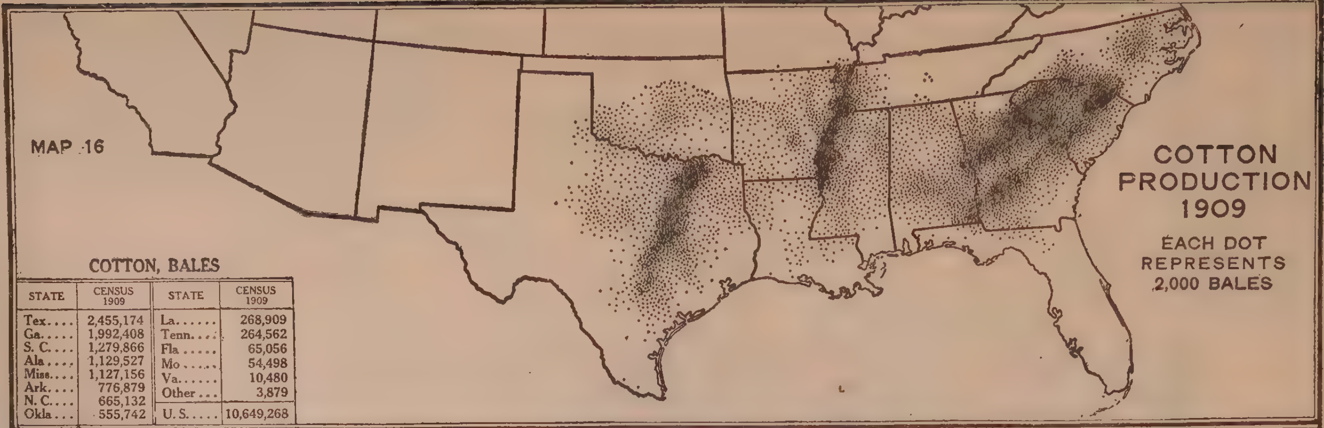
ACTUAL AREA COVERED BY THE DOT IS 1.4 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

COTTON ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Tex	9,930,179	La	957,011
Ga	4,883,304	Tenn	787,516
Ala	3,730,482	Fla	263,454
Miss	3,400,210	Mo	96,527
S. C.	2,556,467	Va	25,147
Ark	2,153,222	Other	8,980
Okla	1,976,935		
N. C.	1,274,404	U. S.	32,043,838

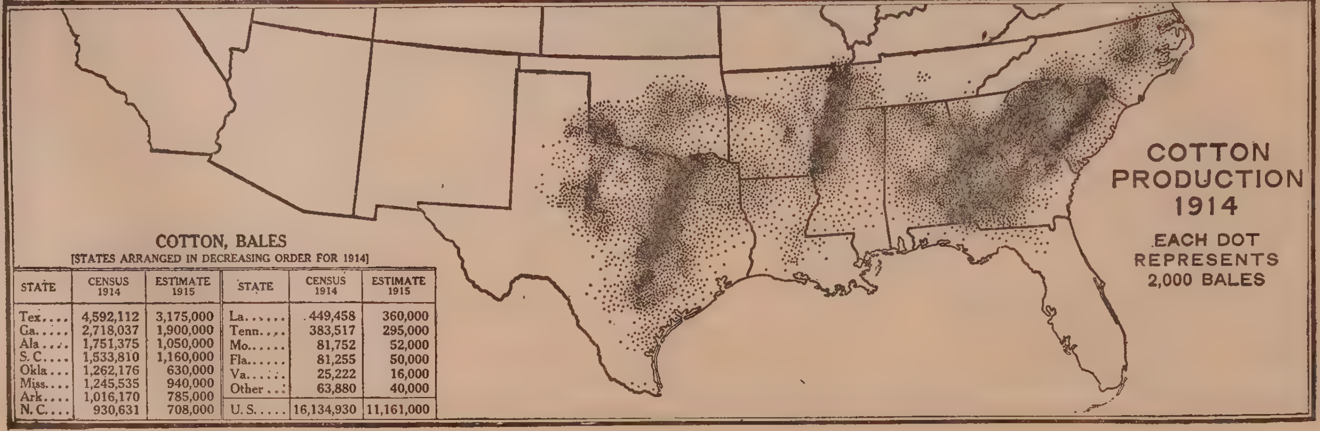
Compare with maps of rural population (map 12), hay and forage (map 26), and mules (map 66).

MAP 16



COTTON, BALES

STATE	CENSUS 1909	STATE	CENSUS 1909
Tex....	2,455,174	La......	268,909
Ga.....	1,992,408	Tenn....	264,562
S. C....	1,279,866	Fla.....	65,056
Ala....	1,129,527	Mo......	54,498
Miss....	1,127,156	Va......	10,480
Ark....	776,879	Other...	3,879
N. C....	665,132		
Okla...	555,742	U. S.....	10,649,268



COTTON, BALES

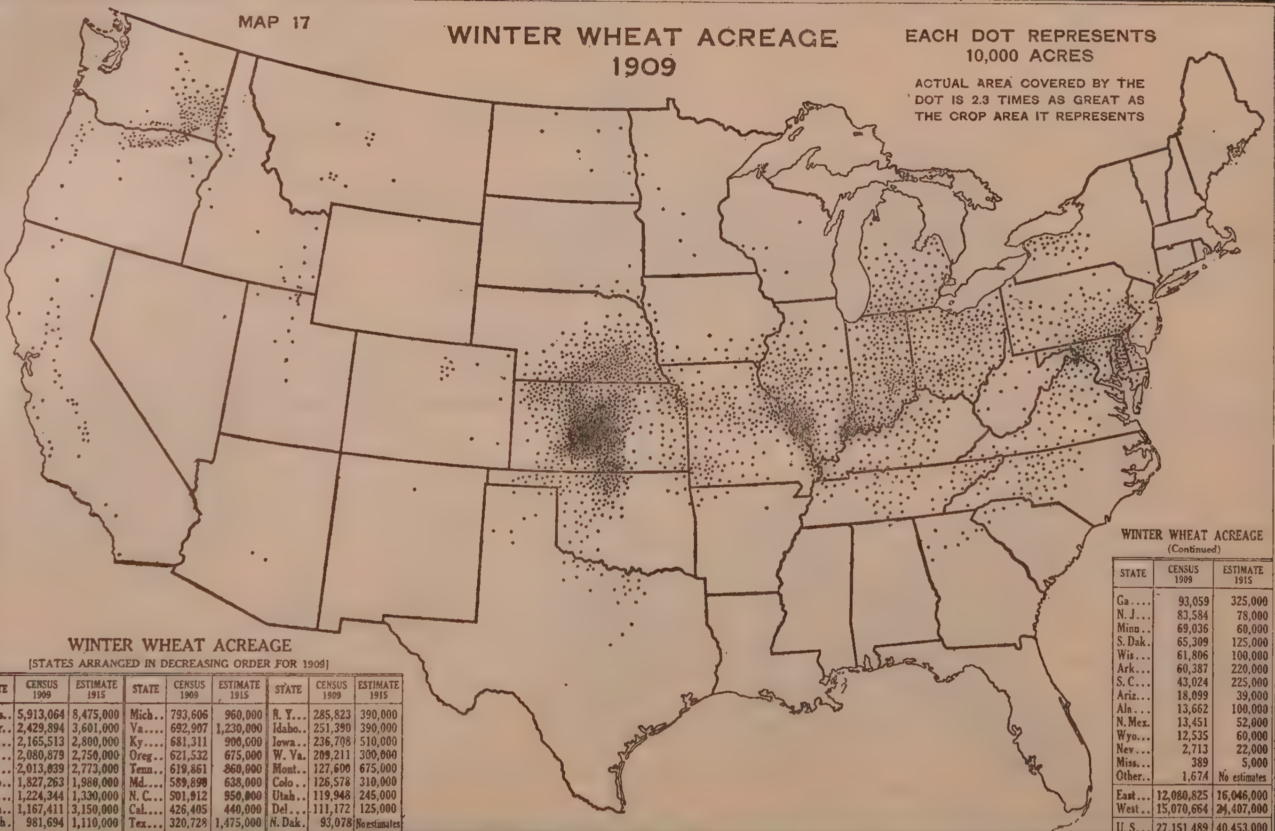
[STATES ARRANGED IN DECREASING ORDER FOR 1914]

STATE	CENSUS 1914	ESTIMATE 1915	STATE	CENSUS 1914	ESTIMATE 1915
Tex....	4,592,112	3,175,000	La......	449,458	360,000
Ga.....	2,718,037	1,900,000	Tenn....	383,517	295,000
Ala....	1,751,375	1,050,000	Mo......	81,752	52,000
S. C....	1,533,810	1,160,000	Fla......	81,255	50,000
Okla...	1,262,176	630,000	Va......	25,222	16,000
Miss....	1,245,535	940,000	Other...	63,880	40,000
Ark....	1,016,170	785,000			
N. C....	930,631	708,000	U. S.....	16,134,930	11,161,000

Compare with map of value of farm land per acre (map 10).

MAP 17

WINTER WHEAT ACREAGE 1909



EACH DOT REPRESENTS 10,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 2.3 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

WINTER WHEAT ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

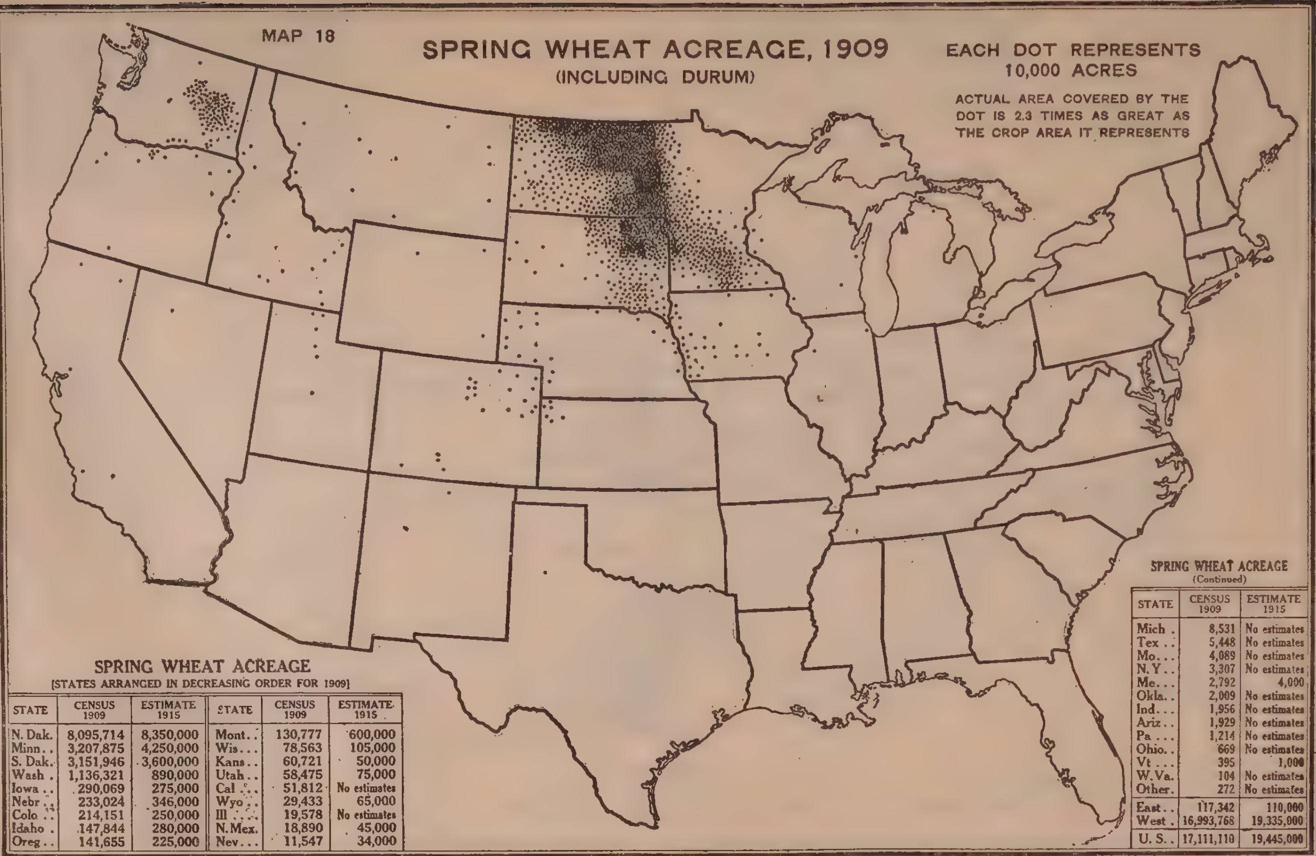
STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Kans..	5,913,064	8,475,000	Mich..	793,606	960,000	N. Y...	285,823	390,000
Nebr..	2,429,894	3,601,000	Va....	692,907	1,230,000	Idaho..	251,390	390,000
Ill....	2,165,513	2,800,000	Ky....	681,311	900,000	Iowa..	236,708	510,000
Ind...	2,080,879	2,750,000	Oreg..	621,532	675,000	W. Va.	209,211	300,000
Mo...	2,013,039	2,773,000	Tenn..	619,861	860,000	Mont..	127,600	675,000
Ohio..	1,827,263	1,980,000	Md....	589,898	638,000	Colo..	126,578	310,000
Pa....	1,224,344	1,330,000	N. C...	501,912	950,000	Utah..	119,948	245,000
Okla..	1,167,411	3,150,000	Cal....	426,405	440,000	Del...	111,172	125,000
Wash.	981,694	1,110,000	Tex....	320,728	1,475,000	N. Dak.	93,078	No estimates

WINTER WHEAT ACREAGE

(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Ga....	93,059	325,000
N. J...	83,584	78,000
Minn..	69,036	60,000
S. Dak.	65,309	125,000
Wis...	61,806	100,000
Ark...	60,387	220,000
S. C...	43,024	225,000
Ariz...	18,099	39,000
Ala...	13,662	100,000
N. Mex.	13,451	52,000
Wyo...	12,535	60,000
Nev...	2,713	22,000
Miss...	389	5,000
Other..	1,674	No estimates
East...	12,080,825	16,046,000
West..	15,070,664	24,407,000
U. S...	27,151,489	40,453,000

Compare with maps of oats (map 21), corn (map 13), and hay and forage (map 26).



MAP 18

SPRING WHEAT ACREAGE, 1909

(INCLUDING DURUM)

EACH DOT REPRESENTS 10,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 2.3 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

SPRING WHEAT ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

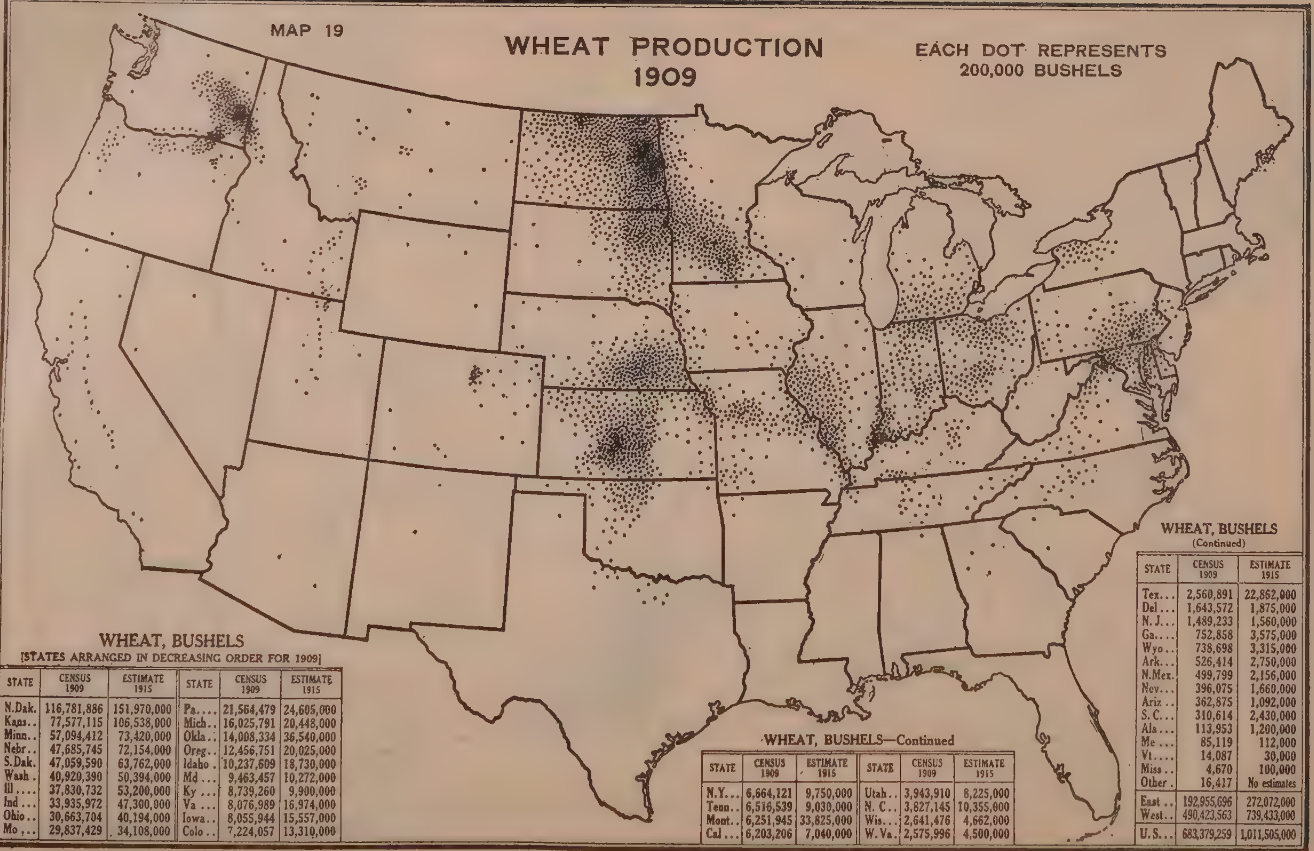
STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N. Dak.	8,095,714	8,350,000	Mont. .	130,777	600,000
Minn. .	3,207,875	4,250,000	Wis. . .	78,563	105,000
S. Dak.	3,151,946	3,600,000	Kans. .	60,721	50,000
Wash .	1,136,321	890,000	Utah . .	58,475	75,000
Iowa . .	290,069	275,000	Cal . .	51,812	No estimates
Nebr . .	233,024	346,000	Wyo . .	29,433	65,000
Colo . .	214,151	250,000	Ill . . .	19,578	No estimates
Idaho .	147,844	280,000	N.Mex.	18,890	45,000
Oreg . .	141,655	225,000	Nev . . .	11,547	34,000

SPRING WHEAT ACREAGE

(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Mich .	8,531	No estimates
Tex . .	5,448	No estimates
Mo. . .	4,089	No estimates
N. Y. .	3,307	No estimates
Me. . .	2,792	4,000
Okla. .	2,009	No estimates
Ind. . .	1,956	No estimates
Ariz . .	1,929	No estimates
Pa . . .	1,214	No estimates
Ohio. .	669	No estimates
Vt . . .	395	1,000
W. Va.	104	No estimates
Other.	272	No estimates
East . .	117,342	110,000
West .	16,993,768	19,335,000
U. S. .	17,111,110	19,445,000

Compare with maps of winter wheat (map 17), corn (map 13), oats (map 21), barley (map 20), and flax (map 24).



MAP 19

WHEAT PRODUCTION
1909

EACH DOT REPRESENTS
200,000 BUSHELS

WHEAT, BUSHELS

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N.Dak.	116,781,886	151,970,000	Pa....	21,564,479	24,605,000
Kans..	77,577,115	106,538,000	Mich..	16,025,791	20,448,000
Minn..	57,094,412	73,420,000	Okla..	14,008,334	36,540,000
Nebr..	47,685,745	72,154,000	Oreg..	12,456,751	20,025,000
S.Dak.	47,059,590	63,762,000	Idaho .	10,237,609	18,730,000
Wash .	40,920,390	50,394,000	Md ...	9,463,457	10,272,000
Ill	37,830,732	53,200,000	Ky ...	8,739,260	9,900,000
Ind ...	33,935,972	47,300,000	Va ...	8,076,989	16,974,000
Ohio ..	30,663,704	40,194,000	Iowa ..	8,055,944	15,557,000
Mo ...	29,837,429	34,108,000	Colo ..	7,224,057	13,310,000

WHEAT, BUSHELS—Continued

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N.Y...	6,664,121	9,750,000	Utah ..	3,943,910	8,225,000
Tenn..	6,516,539	9,030,000	N. C..	3,827,145	10,355,000
Mont..	6,251,945	33,825,000	Wis...	2,641,476	4,662,000
Cal ...	6,203,206	7,040,000	W.Va.	2,575,996	4,500,000

WHEAT, BUSHELS

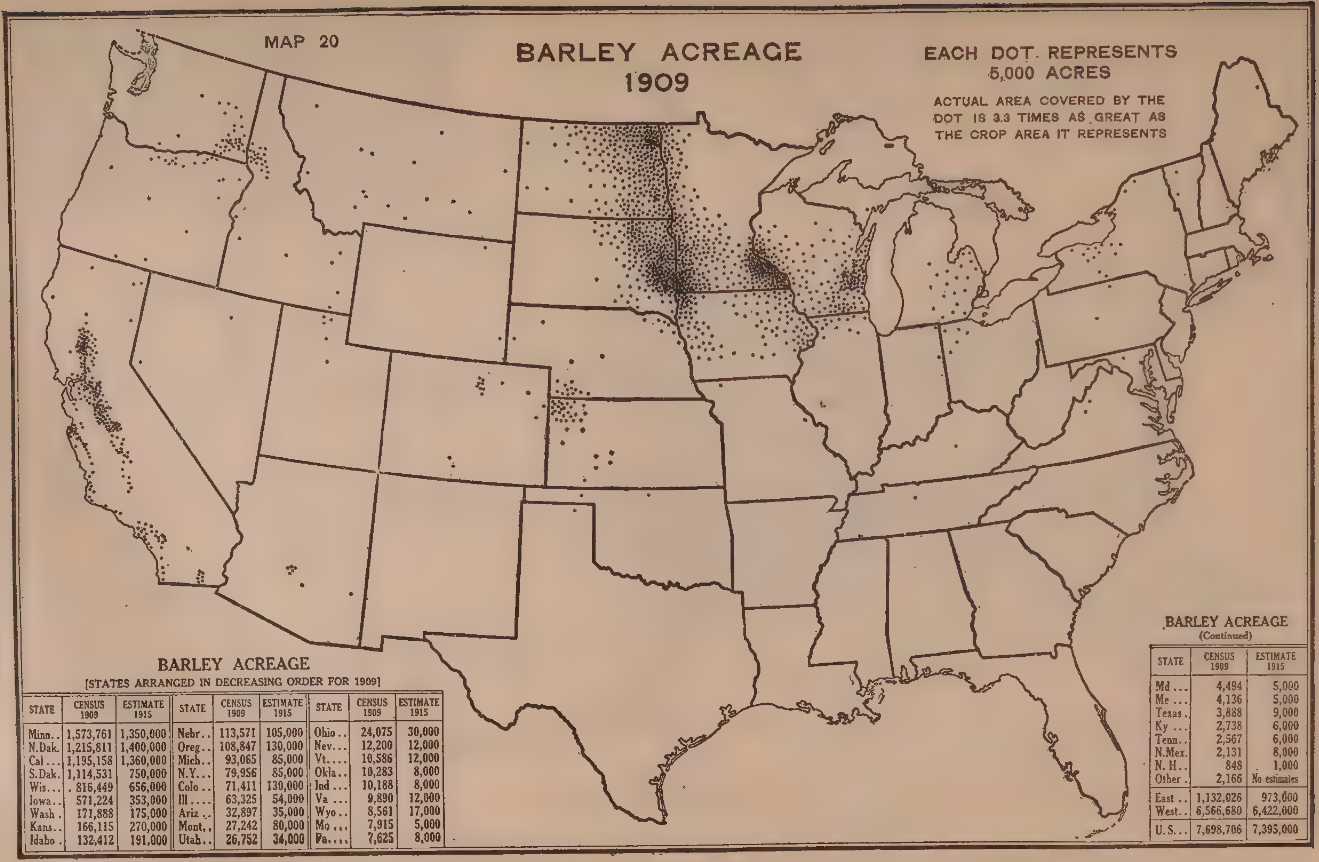
(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Tex...	2,560,891	22,862,000
Del ...	1,643,572	1,875,000
N. J...	1,489,233	1,560,000
Ga....	752,858	3,575,000
Wyo ..	738,698	3,315,000
Ark...	526,414	2,750,000
N.Mex.	499,799	2,156,000
Nev...	396,075	1,660,000
Ariz ..	362,875	1,092,000
S. C...	310,614	2,430,000
Ala ...	113,953	1,200,000
Me ...	85,119	112,000
Vt....	14,087	30,000
Miss ..	4,670	100,000
Other .	16,417	No estimates
East ..	192,955,696	272,072,000
West..	490,423,563	739,433,000
U.S...	683,379,259	1,011,505,000

Compare with maps of spring wheat (map 18) and winter wheat (map 17).

MAP 20

BARLEY ACREAGE 1909


EACH DOT REPRESENTS 5,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 3.3 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

BARLEY ACREAGE

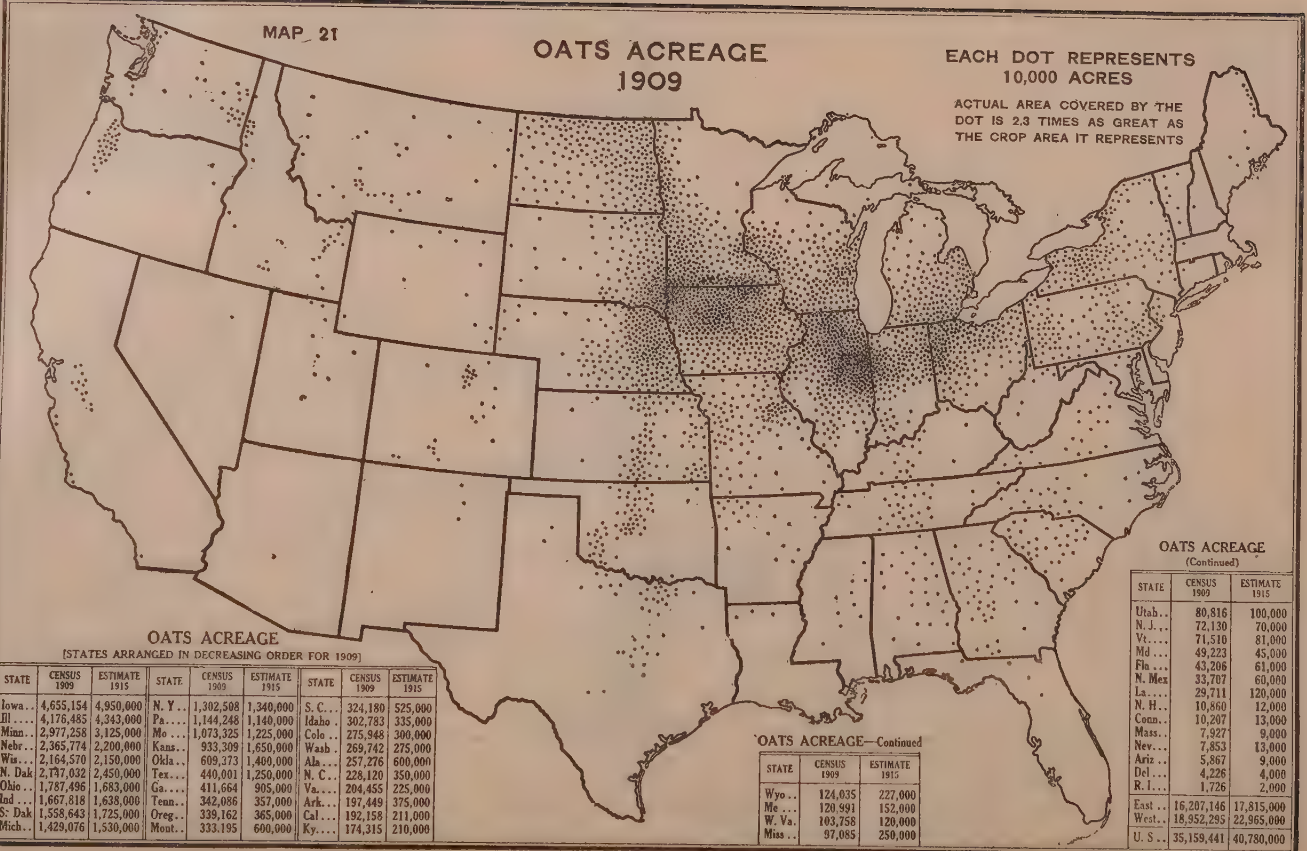
[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Minn..	1,573,761	1,350,000	Nebr..	113,571	105,000	Ohio..	24,075	30,000
N.Dak.	1,215,811	1,400,000	Oreg..	108,847	130,000	Nev...	12,200	12,000
Cal...	1,195,158	1,360,000	Mich..	93,065	85,000	Vt....	10,586	12,000
S.Dak.	1,114,531	750,000	N.Y...	79,956	85,000	Okla..	10,283	8,000
Wis...	816,449	656,000	Colo..	71,411	130,000	Ind...	10,188	8,000
Iowa..	571,224	353,000	Ill....	63,325	54,000	Va ...	9,890	12,000
Wash .	171,888	175,000	Ariz..	32,897	35,000	Wyo..	8,561	17,000
Kans..	166,115	270,000	Mont..	27,242	80,000	Mo....	7,915	5,000
Idaho .	132,412	191,000	Utah..	26,752	34,000	Pa....	7,625	8,000

BARLEY ACREAGE
(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Md...	4,494	5,000
Me...	4,136	5,000
Texas.	3,888	9,000
Ky...	2,738	6,000
Tenn..	2,567	6,000
N.Mex.	2,131	8,000
N.H..	848	1,000
Other.	2,166	No estimates
East..	1,132,026	973,000
West..	6,566,680	6,422,000
U.S...	7,698,706	7,395,000

Compare with maps of spring wheat (map 18) and flax (map 24).


MAP 21
OATS ACREAGE
1909
EACH DOT REPRESENTS
10,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS 2.3 TIMES AS GREAT AS
THE CROP AREA IT REPRESENTS

OATS ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Iowa..	4,655,154	4,950,000	N. Y..	1,302,508	1,340,000	S. C...	324,180	525,000
Ill....	4,176,485	4,343,000	Pa....	1,144,248	1,140,000	Idaho .	302,783	335,000
Minn..	2,977,258	3,125,000	Mo ...	1,073,325	1,225,000	Colo ..	275,948	300,000
Nebr..	2,365,774	2,200,000	Kans..	933,309	1,650,000	Wash .	269,742	275,000
Wis...	2,164,570	2,150,000	Okla..	609,373	1,400,000	Ala ...	257,276	600,000
N. Dak	2,147,032	2,450,000	Tex...	440,001	1,250,000	N. C..	228,120	350,000
Ohio ..	1,787,496	1,683,000	Ga....	411,664	905,000	Va....	204,455	225,000
Ind ...	1,667,818	1,638,000	Tenn..	342,086	357,000	Ark...	197,449	375,000
S. Dak	1,558,643	1,725,000	Oreg..	339,162	365,000	Cal ...	192,158	211,000
Mich..	1,429,076	1,530,000	Mont..	333.195	600,000	Ky....	174,315	210,000

OATS ACREAGE—Continued

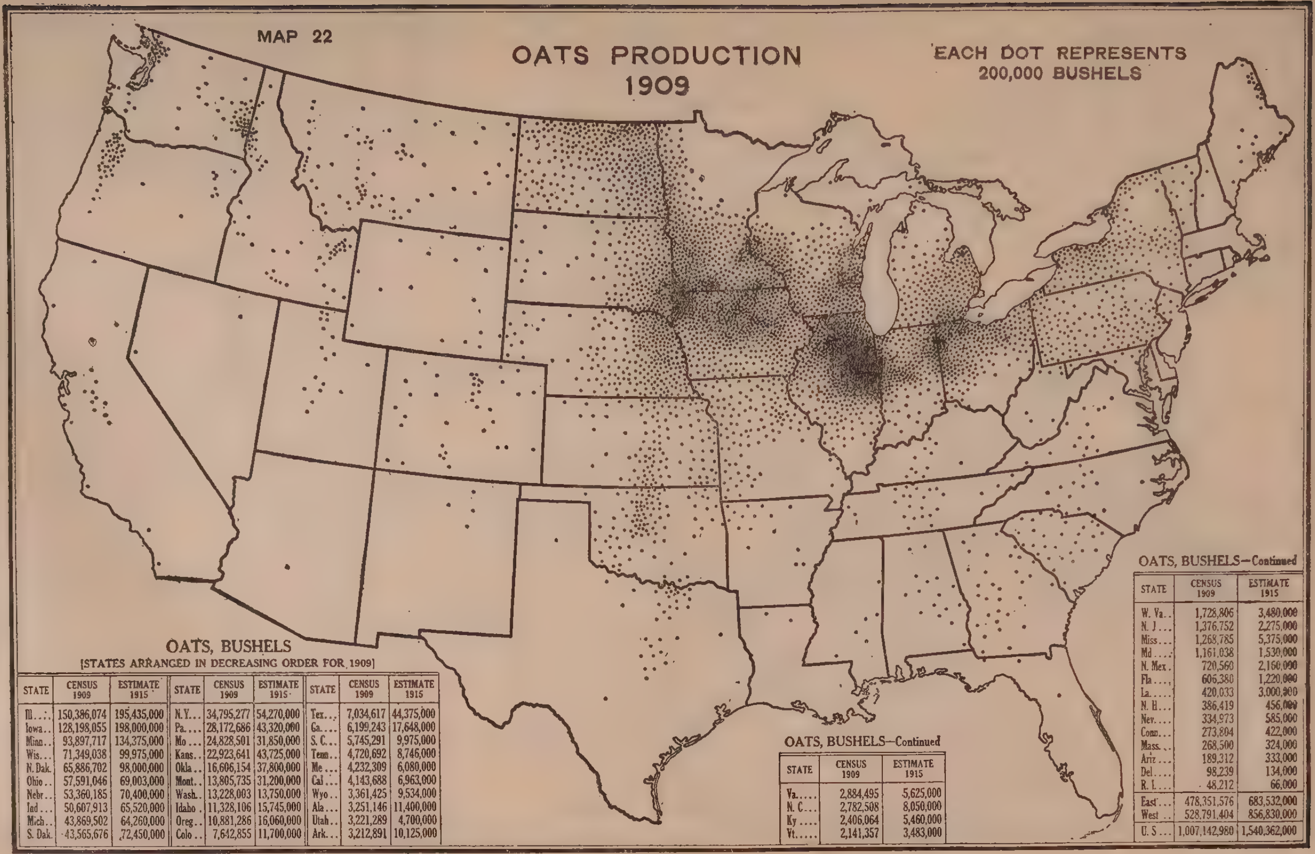
STATE	CENSUS 1909	ESTIMATE 1915
Wyo ..	124,035	227,000
Me ...	120,991	152,000
W. Va.	103,758	120,000
Miss ..	97,085	250,000

OATS ACREAGE

(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Utah..	80,816	100,000
N. J...	72,130	70,000
Vt....	71,510	81,000
Md ...	49,223	45,000
Fla ...	43,206	61,000
N. Mex	33,707	60,000
La....	29,711	120,000
N. H..	10,860	12,000
Conn..	10,207	13,000
Mass..	7,927	9,000
Nev...	7,853	13,000
Ariz ..	5,867	9,000
Del ...	4,226	4,000
R. I...	1,726	2,000
East ..	16,207,146	17,815,000
West..	18,952,295	22,965,000
U. S ..	35,159,441	40,780,000

Compare with maps of corn (map 13) and hay and forage (map 26).



OATS, BUSHELS

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Ill. . .	150,386,074	195,435,000	N. Y. . .	34,795,277	54,270,000	Tex. . .	7,034,617	44,375,000
Iowa . .	128,198,055	198,000,000	Pa. . . .	28,172,686	43,320,000	Ga. . . .	6,199,243	17,648,000
Minn. .	93,897,717	134,375,000	Mo . . .	24,828,501	31,850,000	S. C. . .	5,745,291	9,975,000
Wis. . .	71,349,038	99,975,000	Kans. .	22,923,641	43,725,000	Tenn. .	4,720,692	8,746,000
N. Dak.	65,886,702	98,000,000	Okla . .	16,606,154	37,800,000	Me . . .	4,232,309	6,080,000
Ohio . .	57,591,046	69,003,000	Mont. .	13,805,735	31,200,000	Cal . . .	4,143,688	6,963,000
Nebr. .	53,360,185	70,400,000	Wash. .	13,228,003	13,750,000	Wyo . .	3,361,425	9,534,000
Ind . . .	50,607,913	65,520,000	Idaho .	11,328,106	15,745,000	Ala . . .	3,251,146	11,400,000
Mich. .	43,869,502	64,260,000	Oreg. .	10,881,286	16,060,000	Utah . .	3,221,289	4,700,000
S. Dak.	43,565,676	72,450,000	Colo . .	7,642,855	11,700,000	Ark. . .	3,212,891	10,125,000

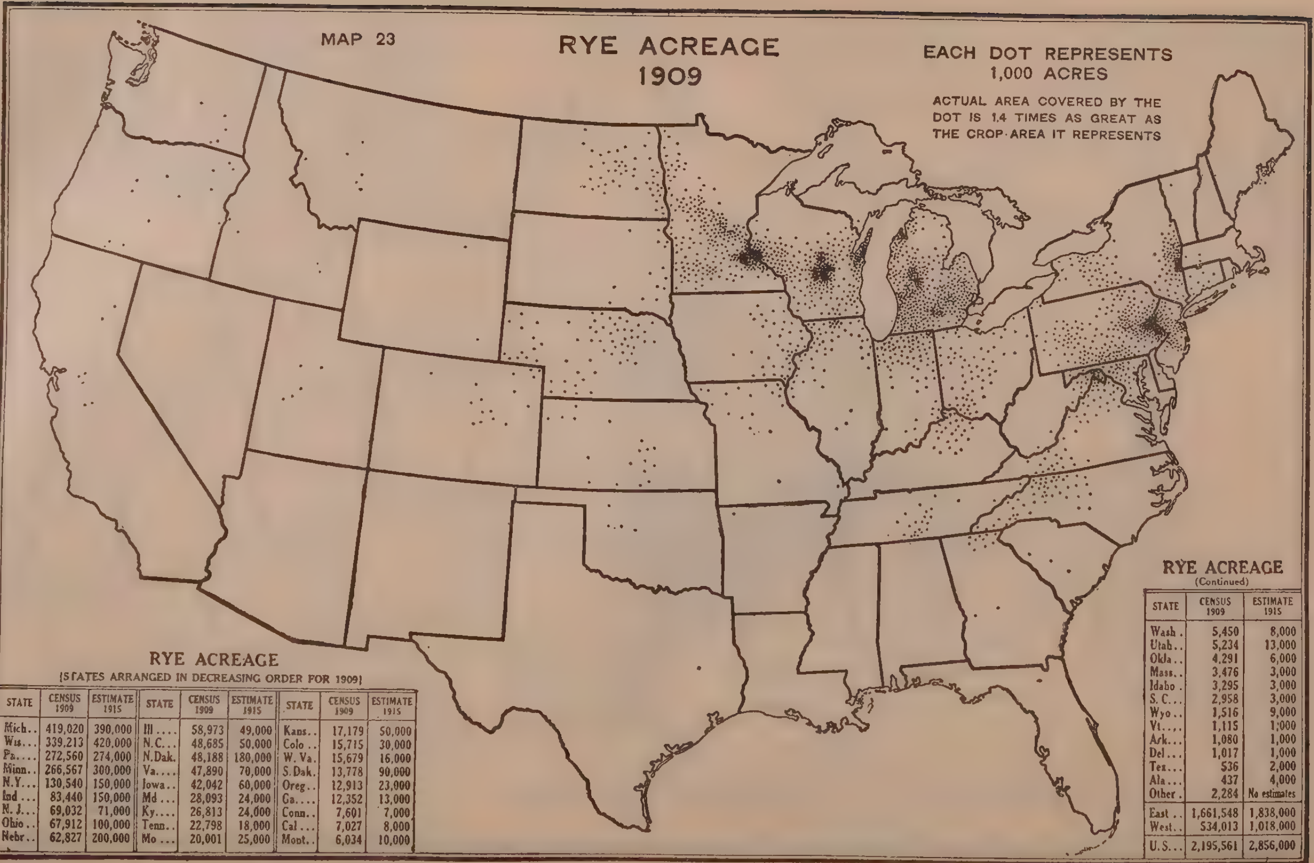
OATS, BUSHELS—Continued

STATE	CENSUS 1909	ESTIMATE 1915
Va.	2,884,495	5,625,000
N. C. . .	2,782,508	8,050,000
Ky	2,406,064	5,460,000
Vt.	2,141,357	3,483,000

OATS, BUSHELS—Continued

STATE	CENSUS 1909	ESTIMATE 1915
W. Va. .	1,728,806	3,480,000
N. J . . .	1,376,752	2,275,000
Miss . . .	1,268,785	5,375,000
Md	1,161,038	1,530,000
N. Mex .	720,560	2,160,000
Fla	606,380	1,220,000
La.	420,033	3,000,000
N. H . . .	386,419	456,000
Nev. . . .	334,973	585,000
Conn. . .	273,804	422,000
Mass. . .	268,500	324,000
Ariz . . .	189,312	333,000
Del	98,239	134,000
R. I	48,212	66,000
East . . .	478,351,576	683,532,000
West . .	528,791,404	856,830,000
U. S . . .	1,007,142,980	1,540,362,000

Compare with maps of horses (map 65) and mules (map 66).


MAP 23
RYE ACREAGE
1909
EACH DOT REPRESENTS
1,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS 1.4 TIMES AS GREAT AS
THE CROP-AREA IT REPRESENTS

RYE ACREAGE

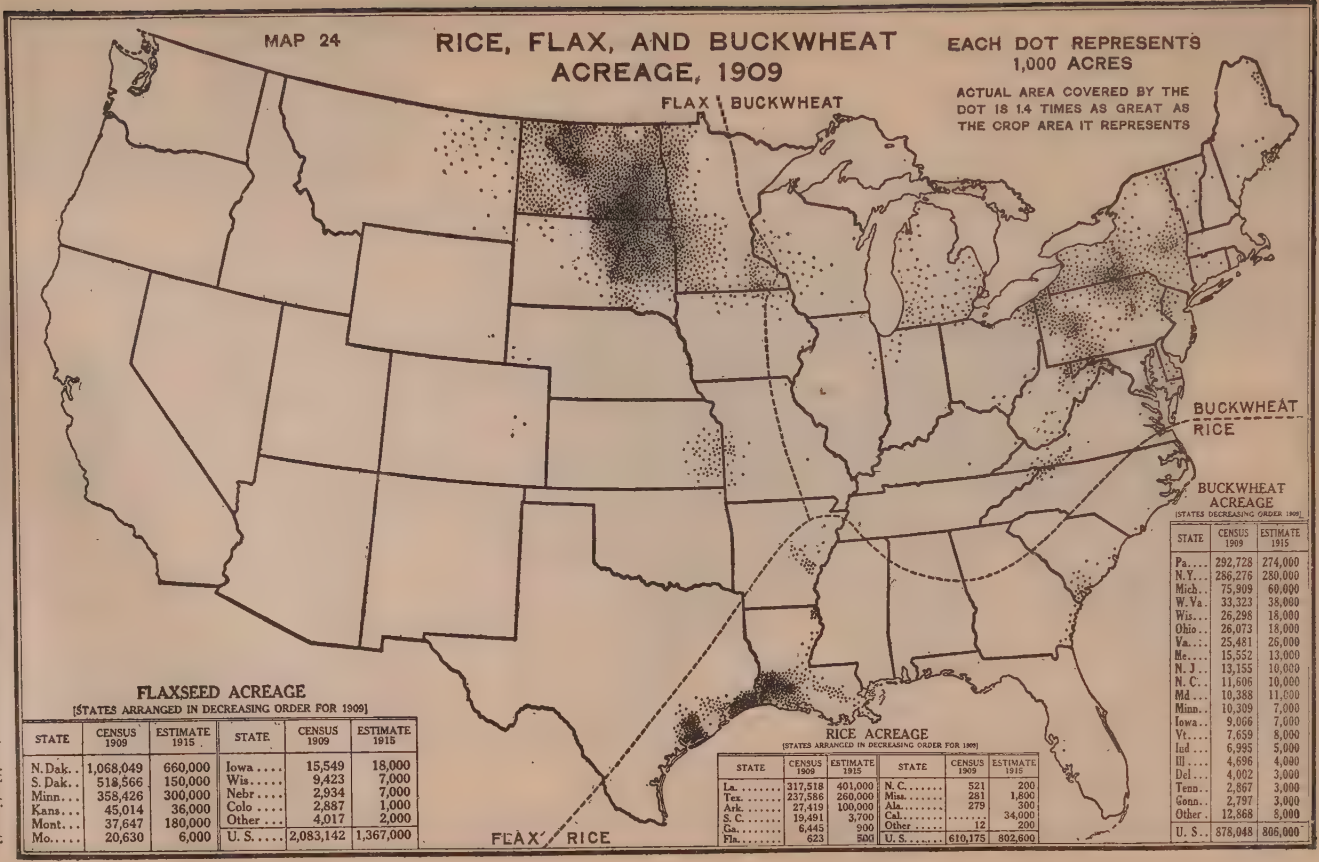
[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
Mich..	419,020	390,000	Ill....	58,973	49,000	Kans..	17,179	50,000
Wis...	339,213	420,000	N.C...	48,685	50,000	Colo..	15,715	30,000
Pa....	272,560	274,000	N.Dak.	48,188	180,000	W.Va.	15,679	16,000
Minn..	266,567	300,000	Va....	47,890	70,000	S.Dak.	13,778	90,000
N.Y...	130,540	150,000	Iowa..	42,042	60,000	Oreg..	12,913	23,000
Ind...	83,440	150,000	Md...	28,093	24,000	Ga....	12,352	13,000
N.J...	69,032	71,000	Ky....	26,813	24,000	Conn..	7,601	7,000
Ohio..	67,912	100,000	Tenn..	22,798	18,000	Cal...	7,027	8,000
Nebr..	62,827	200,000	Mo...	20,001	25,000	Mont..	6,034	10,000

RYE ACREAGE
(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Wash.	5,450	8,000
Utah..	5,234	13,000
Okla..	4,291	6,000
Mass..	3,476	3,000
Idaho.	3,295	3,000
S.C...	2,958	3,000
Wyo..	1,516	9,000
Vt....	1,115	1,000
Ark...	1,080	1,000
Del...	1,017	1,000
Tex...	536	2,000
Ala...	437	4,000
Other.	2,284	No estimates
East..	1,661,548	1,838,000
West..	534,013	1,018,000
U.S...	2,195,561	2,856,000

Compare with maps of winter wheat (map 17) and potatoes (map 39).


MAP 24
RICE, FLAX, AND BUCKWHEAT ACREAGE, 1909
EACH DOT REPRESENTS 1,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 1.4 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS
FLAX
BUCKWHEAT
BUCKWHEAT
RICE
FLAX
RICE

FLAXSEED ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N. Dak. .	1,068,049	660,000	Iowa	15,549	18,000
S. Dak. .	518,566	150,000	Wis.	9,423	7,000
Minn. . .	358,426	300,000	Nebr	2,934	7,000
Kans. . .	45,014	36,000	Colo	2,887	1,000
Mont. . .	37,647	180,000	Other . . .	4,017	2,000
Mo.	20,630	6,000	U. S.	2,083,142	1,367,000

RICE ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

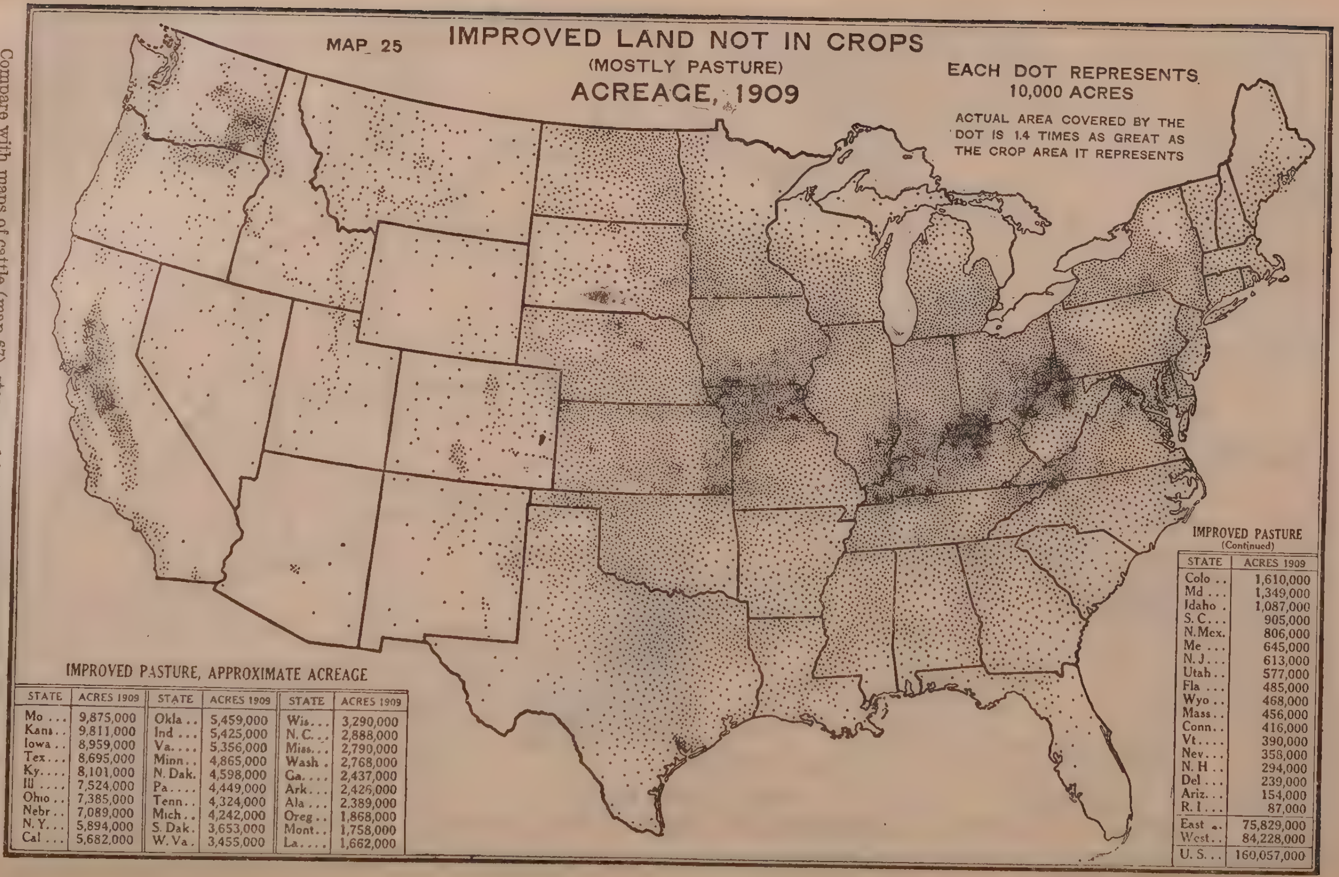
STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
La.	317,518	401,000	N. C.	521	200
Tex.	237,586	260,000	Miss.	281	1,800
Ark.	27,419	100,000	Ala.	279	300
S. C.	19,491	3,700	Cal.	. . . .	34,000
Ga.	6,445	900	Other	12	200
Fla.	623	500	U. S.	610,175	802,600

BUCKWHEAT ACREAGE

[STATES DECREASING ORDER 1909]

STATE	CENSUS 1909	ESTIMATE 1915
Pa. . . .	292,728	274,000
N. Y. . .	286,276	280,000
Mich. .	75,909	60,000
W. Va.	33,323	38,000
Wis. . .	26,298	18,000
Ohio . .	26,073	18,000
Va. . . .	25,481	26,000
Me. . . .	15,552	13,000
N. J . .	13,155	10,000
N. C. .	11,606	10,000
Md . . .	10,388	11,000
Minn. .	10,309	7,000
Iowa . .	9,066	7,000
Vt. . . .	7,659	8,000
Ind . . .	6,995	5,000
Ill	4,696	4,000
Del . . .	4,002	3,000
Tenn. .	2,867	3,000
Conn. .	2,797	3,000
Other .	12,868	8,000
U. S. .	878,048	806,000

Compare flax with spring wheat (map 18), rice with sugar cane (map 38), and buckwheat with timothy and clover mixed (map 28).



MAP 25

IMPROVED LAND NOT IN CROPS
(MOSTLY PASTURE)
ACREAGE, 1909

EACH DOT REPRESENTS
10,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 1.4 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

IMPROVED PASTURE, APPROXIMATE ACREAGE

STATE	ACRES 1909	STATE	ACRES 1909	STATE	ACRES 1909
Mo . . .	9,875,000	Okla . .	5,459,000	Wis. . .	3,290,000
Kans . .	9,811,000	Ind . . .	5,425,000	N. C. . .	2,888,000
Iowa . .	8,959,000	Va. . . .	5,356,000	Miss. . .	2,790,000
Tex . . .	8,695,000	Minn . .	4,865,000	Wash .	2,768,000
Ky. . . .	8,101,000	N. Dak.	4,598,000	Ga. . . .	2,437,000
Ill	7,524,000	Pa	4,449,000	Ark . . .	2,426,000
Ohio . .	7,385,000	Tenn . .	4,324,000	Ala . . .	2,389,000
Nebr . .	7,089,000	Mich . .	4,242,000	Oreg . .	1,868,000
N. Y. . .	5,894,000	S. Dak.	3,653,000	Mont . .	1,758,000
Cal . . .	5,682,000	W. Va.	3,455,000	La. . . .	1,662,000

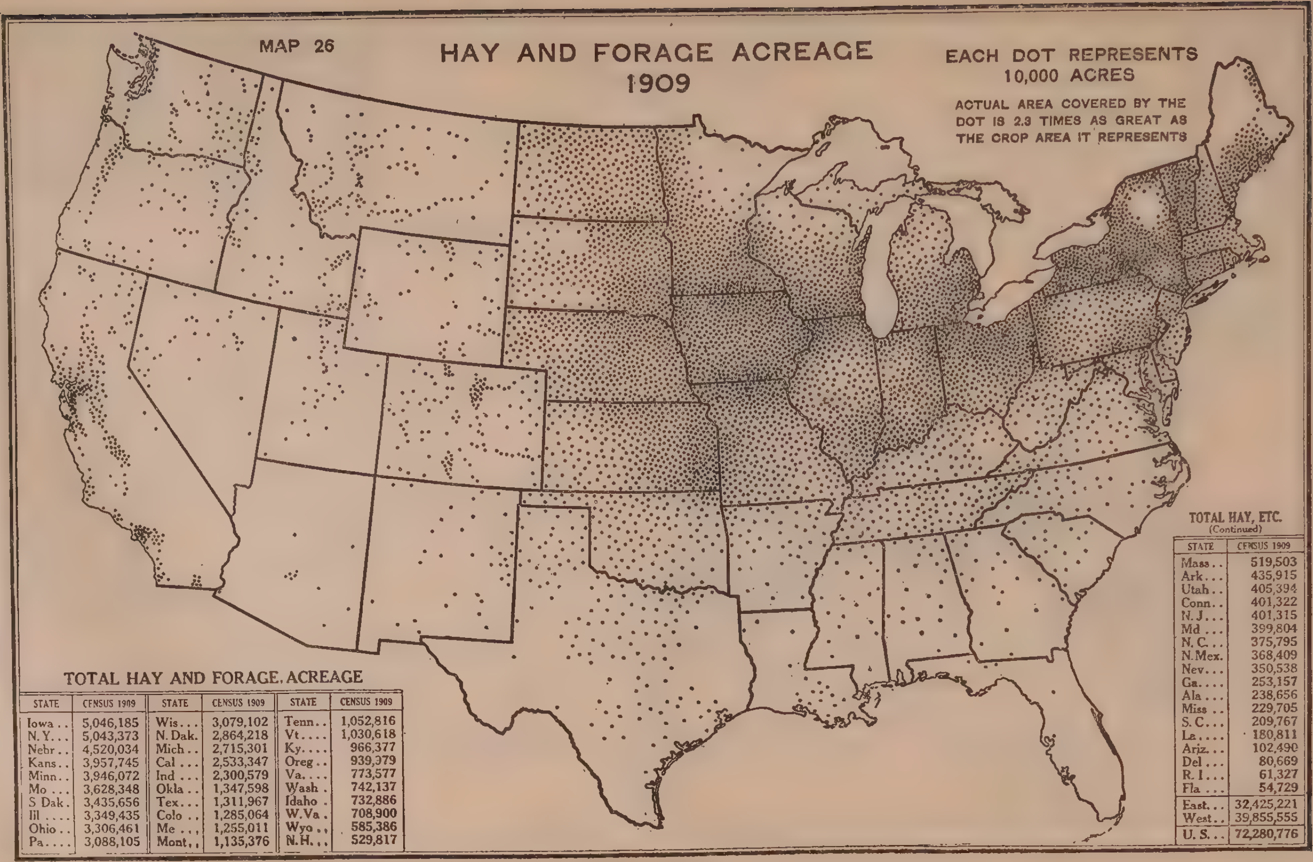
IMPROVED PASTURE
(Continued)

STATE	ACRES 1909
Colo . .	1,610,000
Md . . .	1,349,000
Idaho .	1,087,000
S. C. . .	905,000
N. Mex.	806,000
Me . . .	645,000
N. J. . .	613,000
Utah . .	577,000
Fla . . .	485,000
Wyo . .	468,000
Mass . .	456,000
Conn. .	416,000
Vt. . . .	390,000
Nev. . .	358,000
N. H . .	294,000
Del . . .	239,000
Ariz. . .	154,000
R. I. . .	87,000
East . .	75,829,000
West . .	84,228,000
U. S. . .	160,057,000

Compare with maps of cattle (map 67), steers and bulls (map 68), and dairy cows (map 69).

MAP 26

HAY AND FORAGE ACREAGE
1909


EACH DOT REPRESENTS
10,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 2.3 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

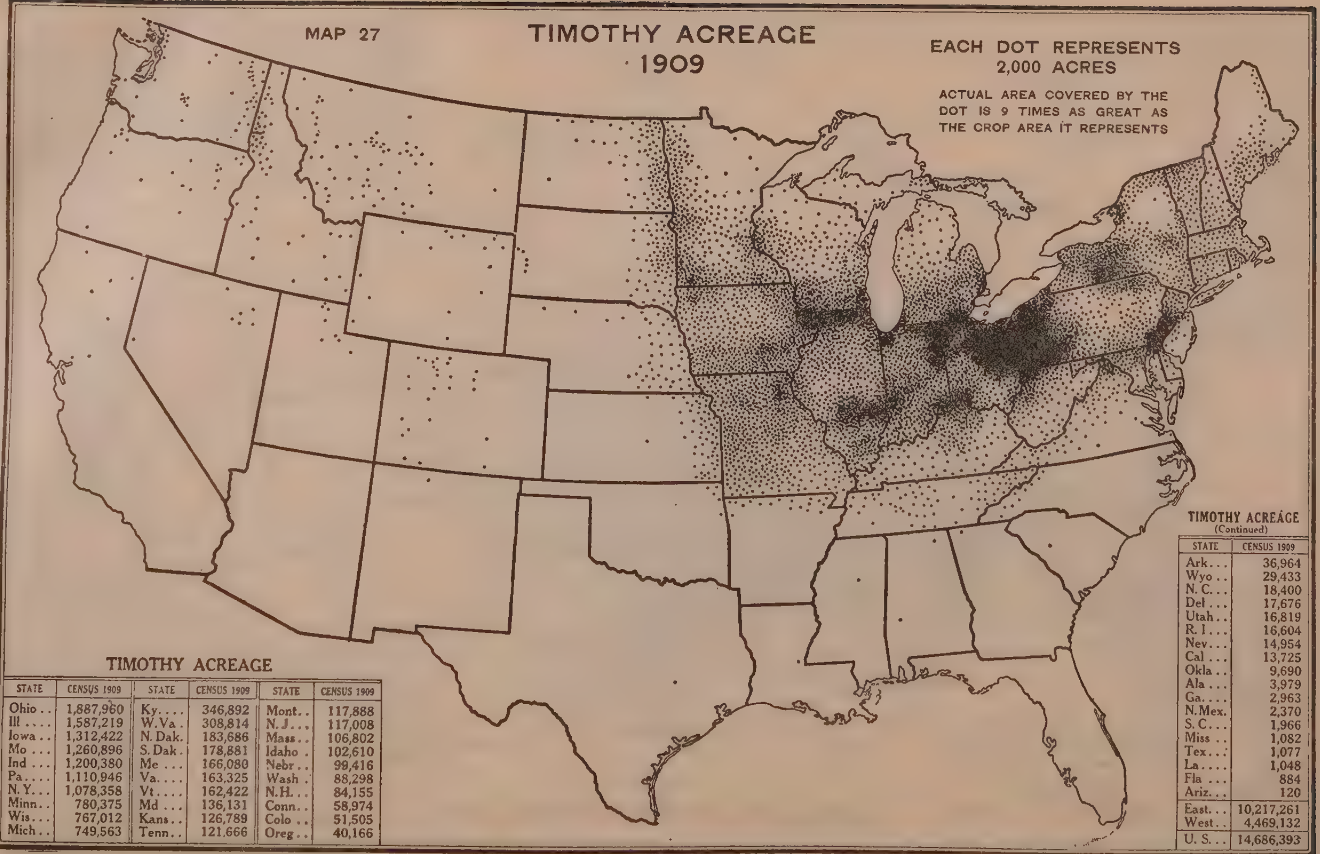
TOTAL HAY AND FORAGE. ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Iowa	5,046,185	Wis	3,079,102	Tenn	1,052,816
N.Y.	5,043,373	N. Dak.	2,864,218	Vt	1,030,618
Nebr	4,520,034	Mich	2,715,301	Ky	966,377
Kans	3,957,745	Cal	2,533,347	Oreg	939,379
Minn	3,946,072	Ind	2,300,579	Va	773,577
Mo	3,628,348	Okla	1,347,598	Wash	742,137
S Dak	3,435,656	Tex	1,311,967	Idaho	732,886
Ill	3,349,435	Colo	1,285,064	W. Va	708,900
Ohio	3,306,461	Me	1,255,011	Wyo	585,386
Pa	3,088,105	Mont	1,135,376	N.H.	529,817

TOTAL HAY, ETC.
(Continued)

STATE	CENSUS 1909
Mass	519,503
Ark	435,915
Utah	405,394
Conn	401,322
N. J	401,315
Md	399,804
N. C	375,795
N. Mex.	368,409
Nev	350,538
Ga	253,157
Ala	238,656
Miss	229,705
S. C	209,767
La	180,811
Ariz	102,490
Del	80,669
R. I	61,327
Fla	54,729
East	32,425,221
West	39,855,555
U. S	72,280,776

Compare with maps of cattle (map 67), steers and bulls (map 68), and dairy cows (map 69).


MAP 27
TIMOTHY ACREAGE
1909
EACH DOT REPRESENTS
2,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS 9 TIMES AS GREAT AS
THE CROP AREA IT REPRESENTS

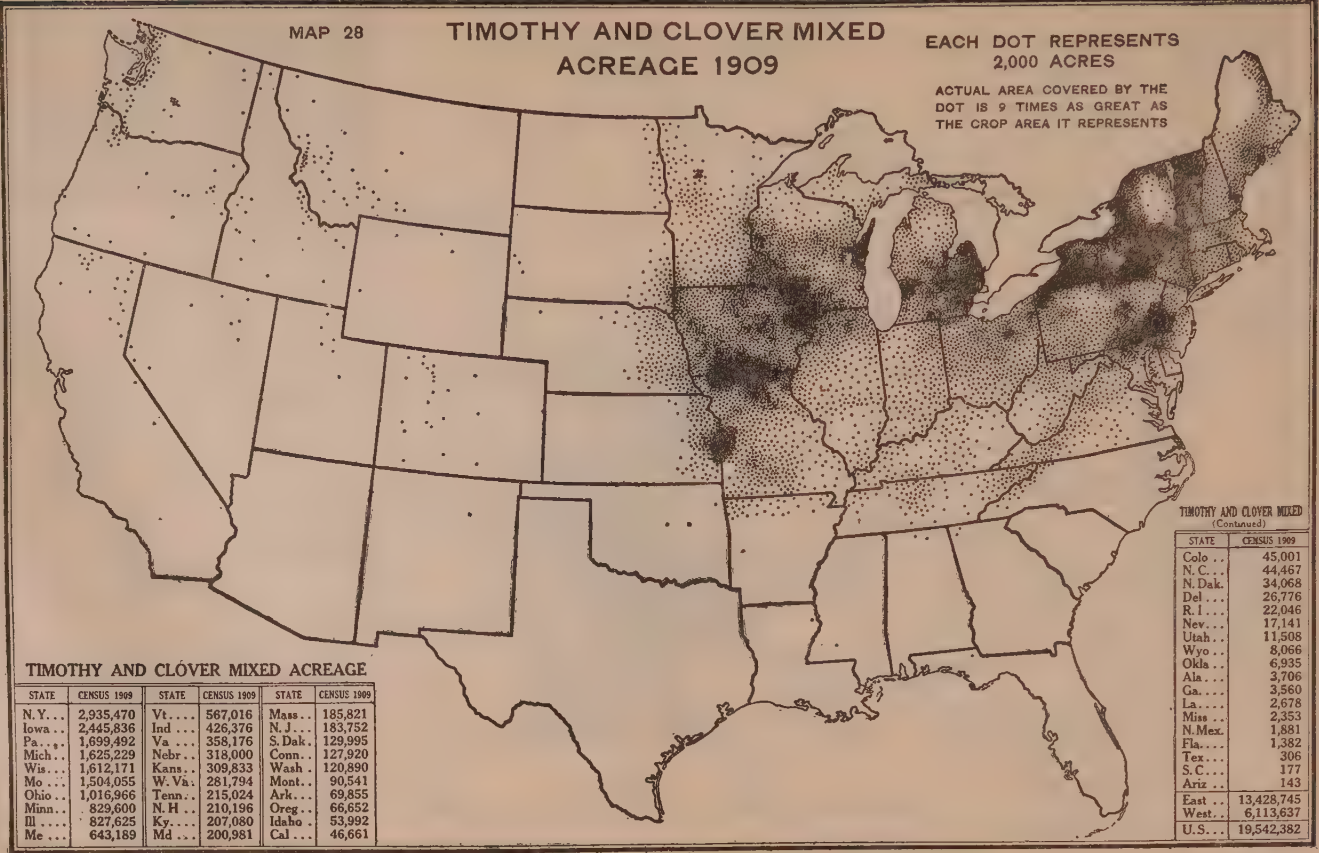
TIMOTHY ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Ohio	1,887,960	Ky	346,892	Mont.	117,888
Ill	1,587,219	W. Va.	308,814	N. J.	117,008
Iowa	1,312,422	N. Dak.	183,686	Mass.	106,802
Mo	1,260,896	S. Dak.	178,881	Idaho	102,610
Ind	1,200,380	Me	166,080	Nebr	99,416
Pa	1,110,946	Va	163,325	Wash	88,298
N. Y.	1,078,358	Vt	162,422	N. H.	84,155
Minn.	780,375	Md	136,131	Conn.	58,974
Wis	767,012	Kans	126,789	Colo	51,505
Mich	749,563	Tenn	121,666	Oreg	40,166

TIMOTHY ACREAGE (Continued)

STATE	CENSUS 1909
Ark	36,964
Wyo	29,433
N. C.	18,400
Del	17,676
Utah	16,819
R. I.	16,604
Nev	14,954
Cal	13,725
Okla	9,690
Ala	3,979
Ga	2,963
N. Mex.	2,370
S. C.	1,966
Miss	1,082
Tex	1,077
La	1,048
Fla	884
Ariz	120
East	10,217,261
West	4,469,132
U. S.	14,686,393

Compare with maps of corn (map 13) and cotton (map 15).



MAP 28

TIMOTHY AND CLOVER MIXED ACREAGE 1909

EACH DOT REPRESENTS 2,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 9 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

TIMOTHY AND CLOVER MIXED ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
N. Y. . .	2,935,470	Vt. . . .	567,016	Mass. .	185,821
Iowa . .	2,445,836	Ind . . .	426,376	N. J. . .	183,752
Pa. . .	1,699,492	Va . . .	358,176	S. Dak.	129,995
Mich. .	1,625,229	Nebr. .	318,000	Conn. .	127,920
Wis. . .	1,612,171	Kans. .	309,833	Wash .	120,890
Mo . . .	1,504,055	W. Va.	281,794	Mont. .	90,541
Ohio . .	1,016,966	Tenn. .	215,024	Ark. . .	69,855
Minn. .	829,600	N. H . .	210,196	Oreg. .	66,652
Ill	827,625	Ky. . . .	207,080	Idaho .	53,992
Me . . .	643,189	Md . . .	200,981	Cal . . .	46,661

TIMOTHY AND CLOVER MIXED (Continued)

STATE	CENSUS 1909
Colo . .	45,001
N. C. . .	44,467
N. Dak.	34,068
Del . . .	26,776
R. I . . .	22,046
Nev. . .	17,141
Utah . .	11,508
Wyo . .	8,066
Okla . .	6,935
Ala . . .	3,706
Ga. . . .	3,560
La. . . .	2,678
Miss . .	2,353
N. Mex.	1,881
Fla. . . .	1,382
Tex . . .	306
S. C. . .	177
Ariz . .	143
East . .	13,428,745
West. .	6,113,637
U. S. . .	19,542,382

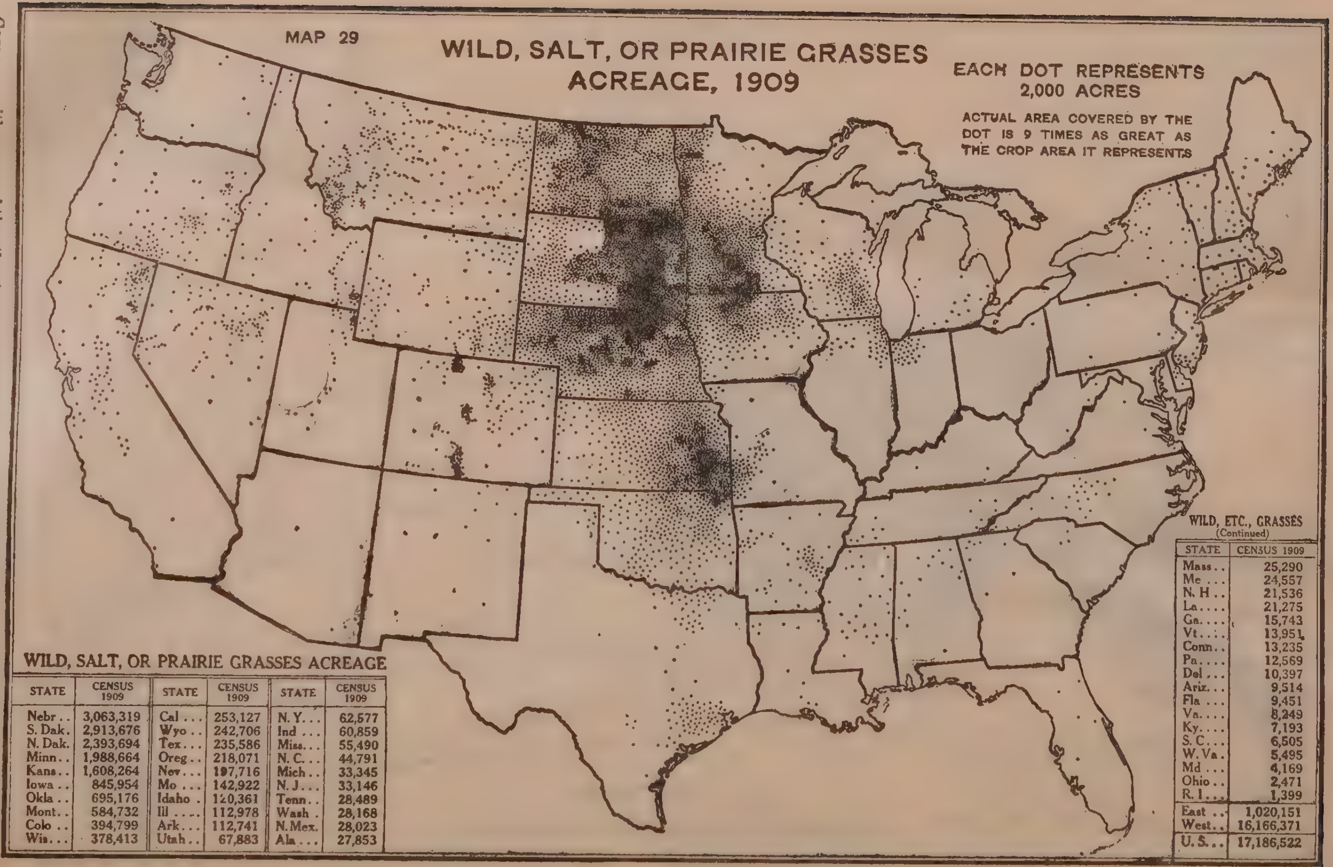
Compare with maps of receipts from sale of dairy products (map 70).

MAP 29

WILD, SALT, OR PRAIRIE GRASSES ACREAGE, 1909

EACH DOT REPRESENTS 2,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 9 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS



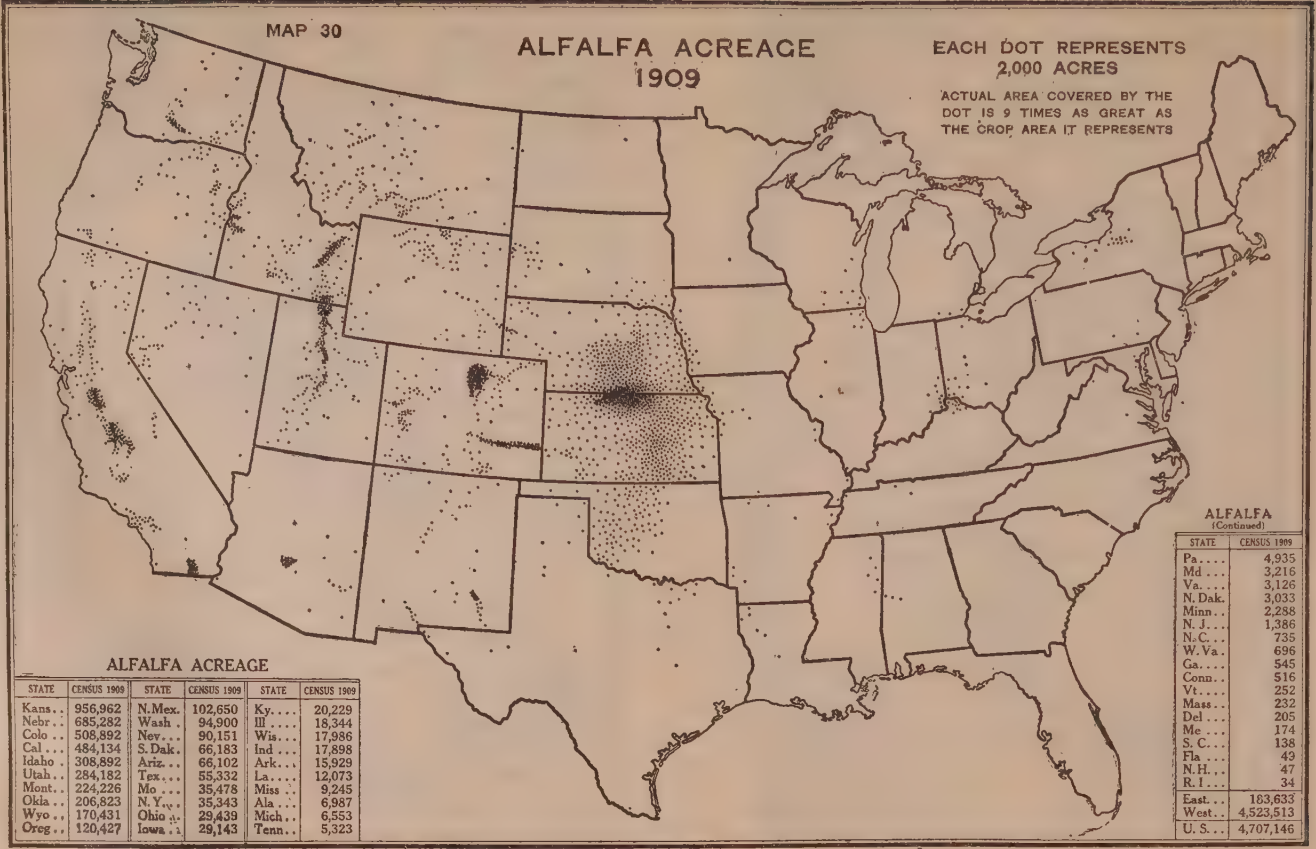
WILD, SALT, OR PRAIRIE GRASSES ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Nebr. .	3,063,319	Cal . . .	253,127	N. Y. . .	62,577
S. Dak.	2,913,676	Wyo . .	242,706	Ind . . .	60,859
N. Dak.	2,393,694	Tex . . .	235,586	Miss. . .	55,490
Minn. .	1,988,664	Oreg . .	218,071	N. C. . .	44,791
Kans. .	1,608,264	Nev . . .	197,716	Mich . .	33,345
Iowa . .	845,954	Mo . . .	142,922	N. J. . .	33,146
Okla . .	695,176	Idaho .	120,361	Tenn. .	28,489
Mont. .	584,732	Ill	112,978	Wash .	28,168
Colo . .	394,799	Ark . . .	112,741	N. Mex.	28,023
Wis. . .	378,413	Utah . .	67,883	Ala . . .	27,853

WILD, ETC., GRASSES (Continued)

STATE	CENSUS 1909
Mass . .	25,290
Me . . .	24,557
N. H . .	21,536
La	21,275
Ga	15,743
Vt	13,951
Conn . .	13,235
Pa	12,569
Del . . .	10,397
Ariz . . .	9,514
Fla . . .	9,451
Va	8,249
Ky	7,193
S. C . . .	6,505
W. Va .	5,495
Md . . .	4,169
Ohio . .	2,471
R. I . . .	1,399
East . .	1,020,151
West . .	16,166,371
U. S . . .	17,186,522

Compare with maps of timothy (map 27), timothy and clover mixed (map 28), and alfalfa (map 30).


MAP 30
ALFALFA ACREAGE
1909
EACH DOT REPRESENTS
2,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS 9 TIMES AS GREAT AS
THE CROP AREA IT REPRESENTS

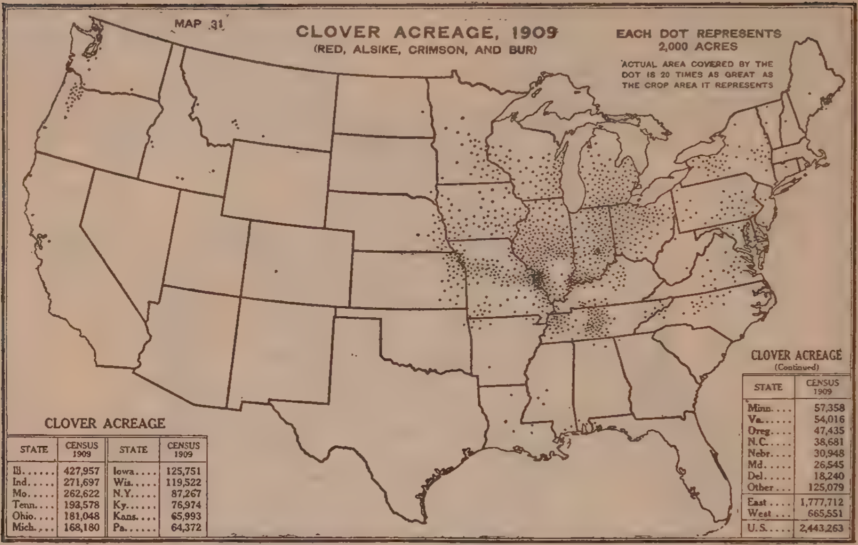
ALFALFA ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Kans. .	956,962	N. Mex.	102,650	Ky. . . .	20,229
Nebr. .	685,282	Wash .	94,900	Ill	18,344
Colo . .	508,892	Nev. . .	90,151	Wis. . .	17,986
Cal . . .	484,134	S. Dak.	66,183	Ind . . .	17,898
Idaho .	308,892	Ariz. . .	66,102	Ark. . .	15,929
Utah . .	284,182	Tex. . .	55,332	La. . . .	12,073
Mont. .	224,226	Mo . . .	35,478	Miss . .	9,245
Okla . .	206,823	N. Y. . .	35,343	Ala . . .	6,987
Wyo . .	170,431	Ohio . .	29,439	Mich . .	6,553
Oreg . .	120,427	Iowa . .	29,143	Tenn . .	5,323

ALFALFA
(Continued)

STATE	CENSUS 1909
Pa. . . .	4,935
Md . . .	3,216
Va. . . .	3,126
N. Dak.	3,033
Minn . .	2,288
N. J. . .	1,386
N. C. . .	735
W. Va .	696
Ga. . . .	545
Conn . .	516
Vt	252
Mass . .	232
Del . . .	205
Me . . .	174
S. C. . .	138
Fla . . .	49
N. H. . .	47
R. I. . .	34
East . .	183,633
West . .	4,523,513
U. S. . .	4,707,146

Compare with maps of corn (map 13), wheat (map 19), and land in crops (map 5).


MAP 31
CLOVER ACREAGE, 1909
(RED, ALSIKE, CRIMSON, AND BUR)
EACH DOT REPRESENTS 2,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 20 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

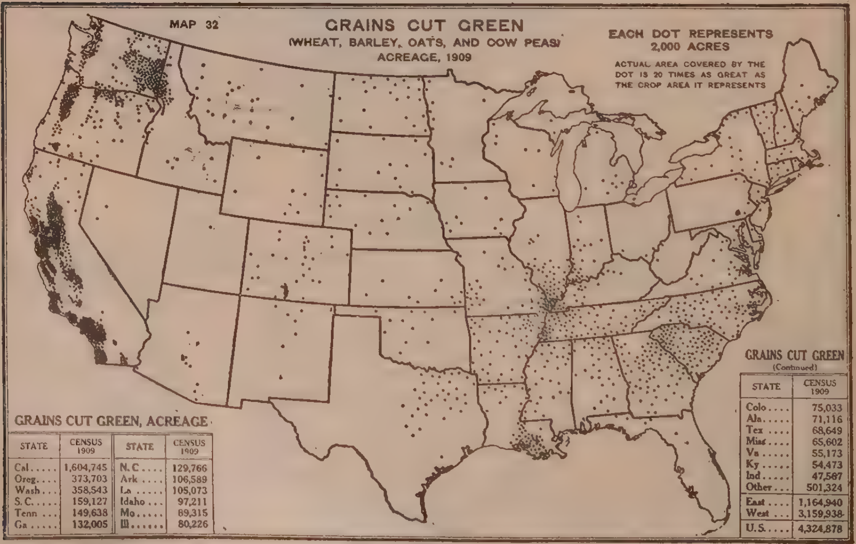
CLOVER ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Ill.	427,957	Iowa. . . .	125,751
Ind.	271,697	Wis.	119,522
Mo.	262,622	N.Y.	87,267
Tenn. . . .	193,578	Ky.	76,974
Ohio. . . .	181,048	Kans. . . .	65,993
Mich. . . .	168,180	Pa.	64,372

CLOVER ACREAGE
(Continued)

STATE	CENSUS 1909
Minn. . . .	57,358
Va.	54,016
Oreg. . . .	47,435
N.C.	38,681
Nebr. . . .	30,948
Md.	26,545
Del.	18,240
Other . . .	125,079
East	1,777,712
West . . .	665,551
U.S.	2,443,263

Compare with map of timothy and clover mixed (map 28).


MAP 32
GRAINS CUT GREEN
(WHEAT, BARLEY, OATS, AND COW PEAS)
ACREAGE, 1909
EACH DOT REPRESENTS 2,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 20 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

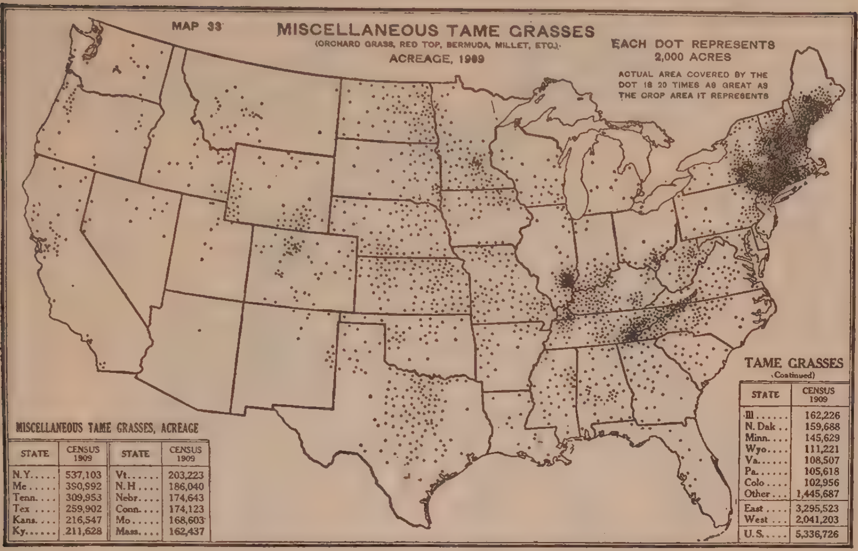
GRAINS CUT GREEN, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Cal.	1,604,745	N.C	129,766
Oreg. . . .	373,703	Ark	106,589
Wash . . .	358,543	La	105,073
S.C.	159,127	Idaho . . .	97,211
Tenn . . .	149,638	Mo.	89,315
Ga	132,005	Ill.	80,226

GRAINS CUT GREEN
(Continued)

STATE	CENSUS 1909
Colo	75,033
Ala.	71,116
Tex	68,649
Miss	65,602
Va	55,173
Ky	54,473
Ind	47,587
Other . . .	501,324
East	1,164,940
West . . .	3,159,938
U.S.	4,324,878

Compare with map of alfalfa (map 30).


MAP 33
MISCELLANEOUS TAME GRASSES
(ORCHARD GRASS, RED TOP, BERMUDA, MILLET, ETC.)
ACREAGE, 1909
EACH DOT REPRESENTS 2,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 20 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

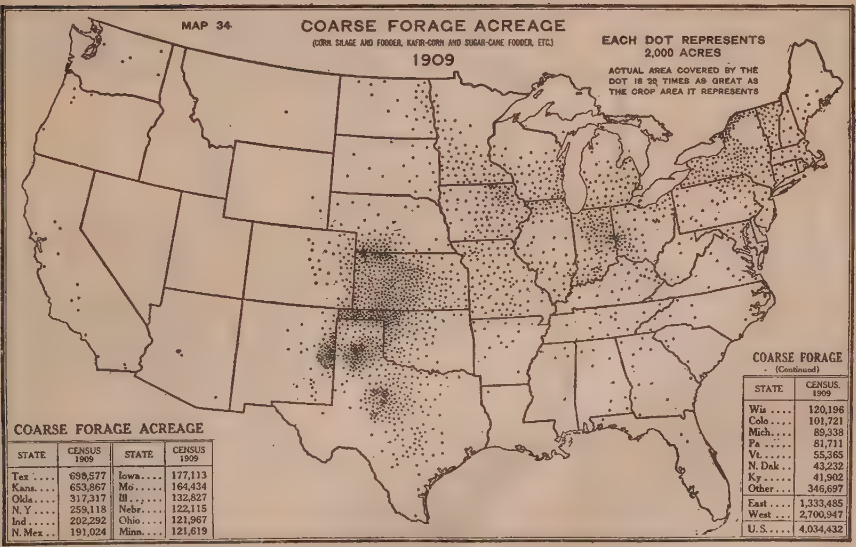
MISCELLANEOUS TAME GRASSES, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
N.Y.	537,103	Vt.	203,223
Me.	390,992	N.H.	186,040
Tenn.	309,953	Nebr.	174,643
Tex	259,902	Conn.	174,123
Kans.	216,547	Mo.	168,603
Ky.	211,628	Mass.	162,437

TAME GRASSES
(Continued)

STATE	CENSUS 1909
Ill.	162,226
N. Dak	159,688
Minn.	145,629
Wyo.	111,221
Va.	108,507
Pa.	105,618
Colo	102,956
Other	1,445,687
East	3,295,523
West	2,041,203
U.S.	5,336,726

Compare with maps of timothy and clover mixed (map 28) and coarse forage (map 34).


MAP 34
COARSE FORAGE ACREAGE
(CORN SILAGE AND FODDER, KAFIR-CORN AND SUGAR-CANE FODDER, ETC.)
1909
EACH DOT REPRESENTS 2,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 20 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

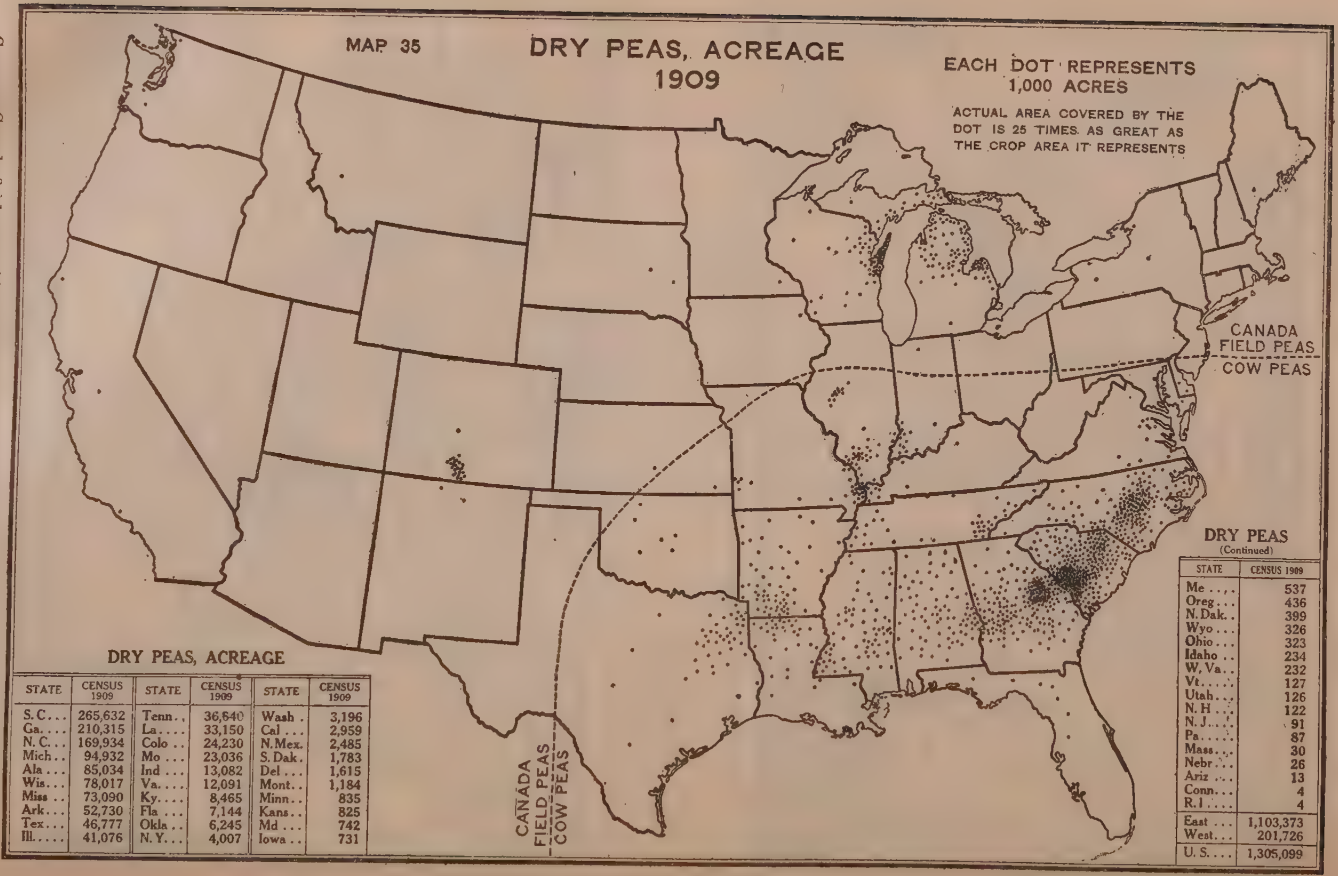
COARSE FORAGE ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Tex	698,577	Iowa	177,113
Kans.	653,867	Mo.	164,434
Okla.	317,317	Ill.	132,827
N.Y.	259,118	Nebr.	122,115
Ind.	202,292	Ohio	121,967
N. Mex	191,024	Minn.	121,619

COARSE FORAGE
(Continued)

STATE	CENSUS. 1909
Wis	120,196
Colo	101,721
Mich.	89,338
Pa	81,711
Vt.	55,365
N. Dak	43,232
Ky	41,902
Other	346,697
East	1,333,485
West	2,700,947
U.S.	4,034,432

Compare with maps of wild, salt, or prairie grasses (map 29) and alfalfa (map 30).



MAP 35

DRY PEAS, ACREAGE 1909

EACH DOT REPRESENTS 1,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 25 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

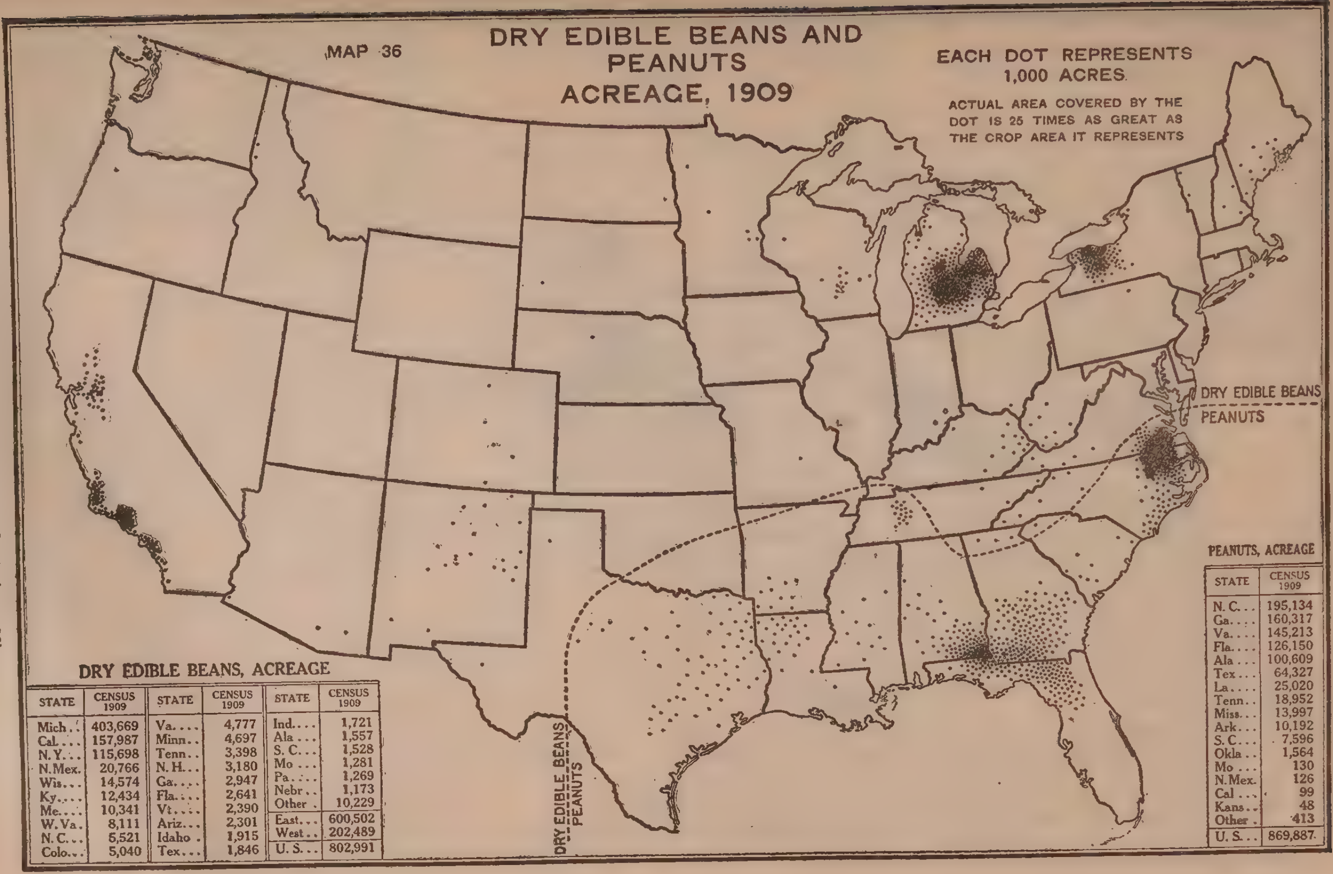
DRY PEAS, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
S. C. . . .	265,632	Tenn. . .	36,640	Wash .	3,196
Ga. . . .	210,315	La. . . .	33,150	Cal . . .	2,959
N. C. . .	169,934	Colo . .	24,230	N. Mex.	2,485
Mich . .	94,932	Mo . . .	23,036	S. Dak.	1,783
Ala . . .	85,034	Ind . . .	13,082	Del . . .	1,615
Wis. . .	78,017	Va. . . .	12,091	Mont. .	1,184
Miss . .	73,090	Ky. . . .	8,465	Minn. .	835
Ark. . .	52,730	Fla . . .	7,144	Kans. .	825
Tex. . .	46,777	Okla . .	6,245	Md . . .	742
Ill. . . .	41,076	N. Y. . .	4,007	Iowa . .	731

DRY PEAS
(Continued)

STATE	CENSUS 1909
Me	537
Oreg . . .	436
N. Dak. .	399
Wyo . . .	326
Ohio . . .	323
Idaho . .	234
W. Va. .	232
Vt.	127
Utah . . .	126
N. H . . .	122
N. J. . . .	91
Pa.	87
Mass. . .	30
Nebr . . .	26
Ariz . . .	13
Conn. . .	4
R. I	4
East . . .	1,103,373
West. . .	201,726
U. S. . . .	1,305,099

Compare Canada field peas with dry edible beans (map 36) and cow peas with peanuts (map 36).


MAP 36
DRY EDIBLE BEANS AND PEANUTS ACREAGE, 1909
EACH DOT REPRESENTS 1,000 ACRES.
ACTUAL AREA COVERED BY THE DOT IS 25 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS
DRY EDIBLE BEANS
PEANUTS
DRY EDIBLE BEANS
PEANUTS

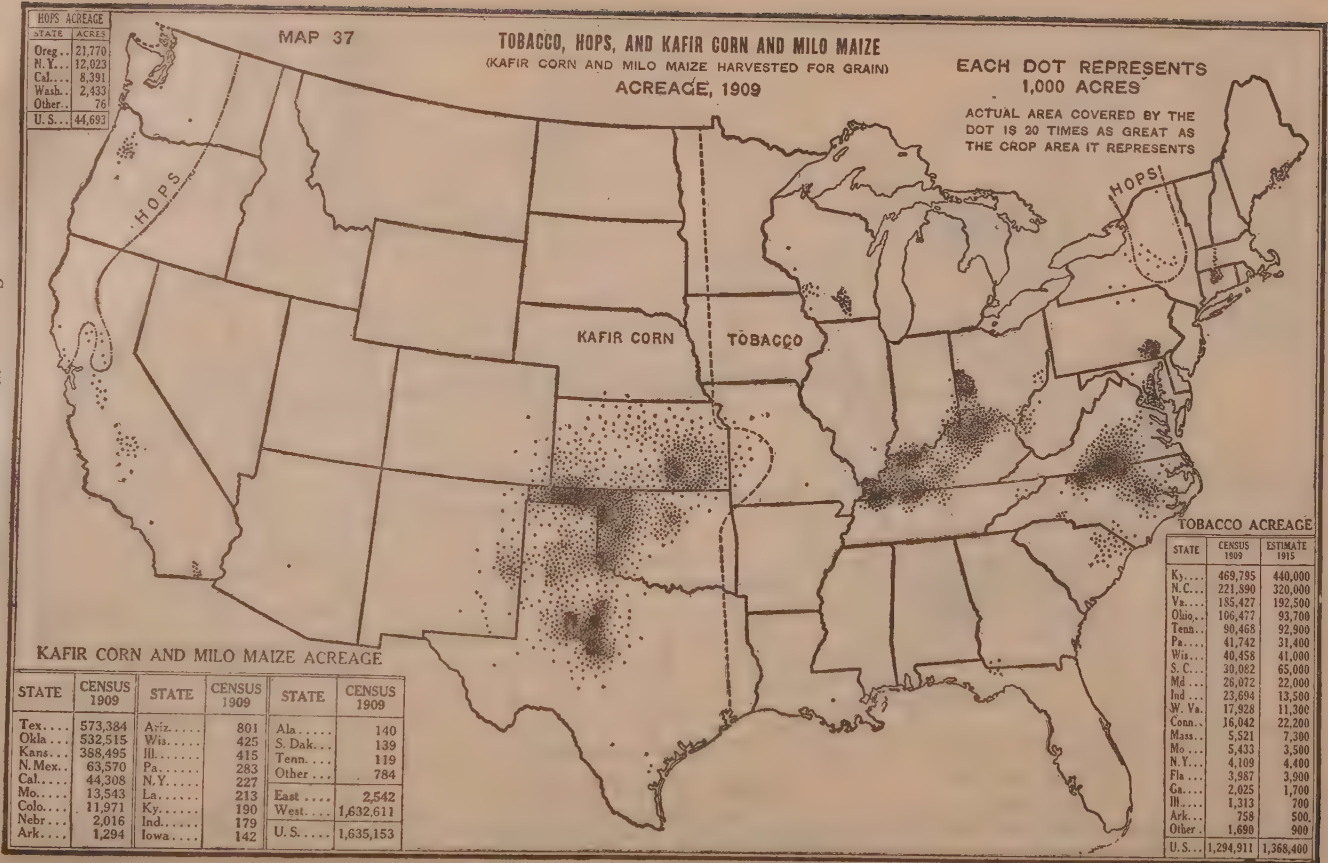
DRY EDIBLE BEANS, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Mich. . .	403,669	Va. . . .	4,777	Ind. . . .	1,721
Cal. . . .	157,987	Minn. . .	4,697	Ala . . .	1,557
N. Y. . . .	115,698	Tenn. . .	3,398	S. C. . .	1,528
N. Mex.	20,766	N. H. . .	3,180	Mo . . .	1,281
Wis. . . .	14,574	Ga. . . .	2,947	Pa. . . .	1,269
Ky. . . .	12,434	Fla. . . .	2,641	Nebr . .	1,173
Me. . . .	10,341	Vt. . . .	2,390	Other .	10,229
W. Va.	8,111	Ariz. . .	2,301	East. . .	600,502
N. C. . .	5,521	Idaho .	1,915	West . .	202,489
Colo. . .	5,040	Tex. . .	1,846	U. S. . .	802,991

PEANUTS, ACREAGE

STATE	CENSUS 1909
N. C. . .	195,134
Ga. . . .	160,317
Va. . . .	145,213
Fla. . . .	126,150
Ala . . .	100,609
Tex . . .	64,327
La. . . .	25,020
Tenn. .	18,952
Miss. . .	13,997
Ark. . .	10,192
S. C. . .	7,596
Okla . .	1,564
Mo . . .	130
N. Mex.	126
Cal . . .	99
Kans . .	48
Other .	413
U. S. . .	869,887

Compare dry edible beans with sugar beets (map 38).



TOBACCO, HOPS, AND KAFIR CORN AND MILO MAIZE

(KAFIR CORN AND MILO MAIZE HARVESTED FOR GRAIN)

ACREAGE, 1909

EACH DOT REPRESENTS 1,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 20 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

HOPS ACREAGE

STATE	ACRES
Oreg..	21,770
N.Y...	12,023
Cal....	8,391
Wash..	2,433
Other..	76
U.S...	44,693

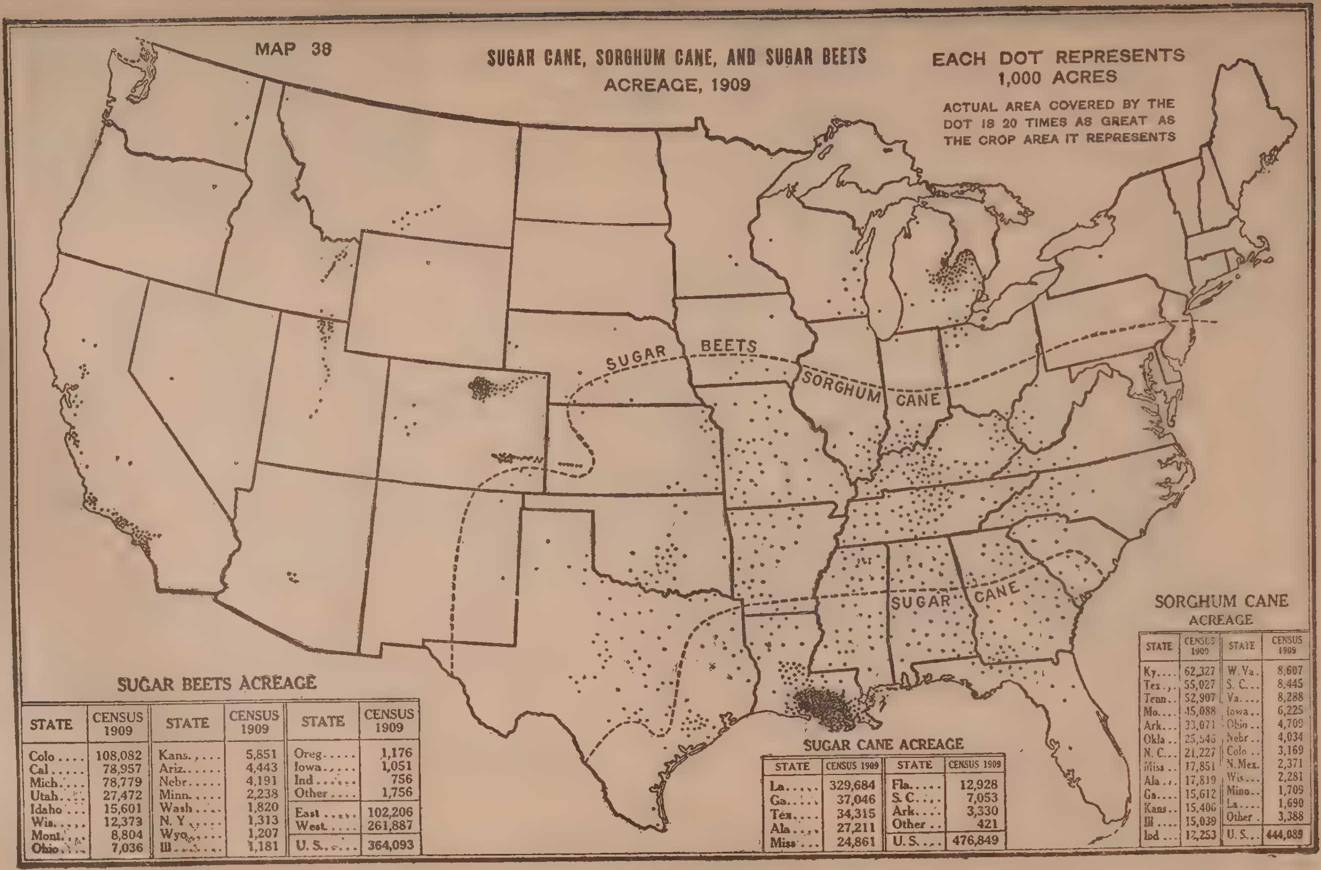
TOBACCO ACREAGE

STATE	CENSUS 1909	ESTIMATE 1915
Ky....	469,795	440,000
N.C...	221,890	320,000
Va....	185,427	192,500
Ohio,..	106,477	93,700
Tenn..	90,468	92,900
Pa....	41,742	31,400
Wis...	40,458	41,000
S. C...	30,082	65,000
Md ...	26,072	22,000
Ind ...	23,694	13,500
W. Va.	17,928	11,300
Conn..	16,042	22,200
Mass..	5,521	7,300
Mo ...	5,433	3,500
N.Y...	4,109	4,400
Fla ...	3,987	3,900
Ga....	2,025	1,700
Ill....	1,313	700
Ark...	758	500
Other .	1,690	900
U.S...	1,294,911	1,368,400

KAFIR CORN AND MILO MAIZE ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Tex....	573,384	Ariz.....	801	Ala.....	140
Okla...	532,515	Wis.....	425	S. Dak...	139
Kans...	388,495	Ill.......	415	Tenn....	119
N. Mex..	63,570	Pa.......	283	Other ...	784
Cal.....	44,308	N.Y......	227	East	2,542
Mo.....	13,543	La.......	213	West....	1,632,611
Colo....	11,971	Ky.......	190	U.S.....	1,635,153
Nebr...	2,016	Ind......	179		
Ark....	1,294	Iowa....	142		

Compare with map of corn (map 13).


MAP 38
SUGAR CANE, SORGHUM CANE, AND SUGAR BEETS
ACREAGE, 1909
EACH DOT REPRESENTS
1,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS 20 TIMES AS GREAT AS
THE CROP AREA IT REPRESENTS
SUGAR BEETS
SORGHUM CANE
SUGAR CANE

SUGAR BEETS ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Colo	108,082	Kans.	5,851	Oreg.	1,176
Cal	78,957	Ariz.	4,443	Iowa	1,051
Mich.	78,779	Nebr.	4,191	Ind	756
Utah	27,472	Minn.	2,238	Other	1,756
Idaho	15,601	Wash	1,820	East	102,206
Wis.	12,373	N. Y	1,313	West	261,887
Mont.	8,804	Wyo.	1,207		
Ohio	7,036	Ill	1,181	U. S.	364,093

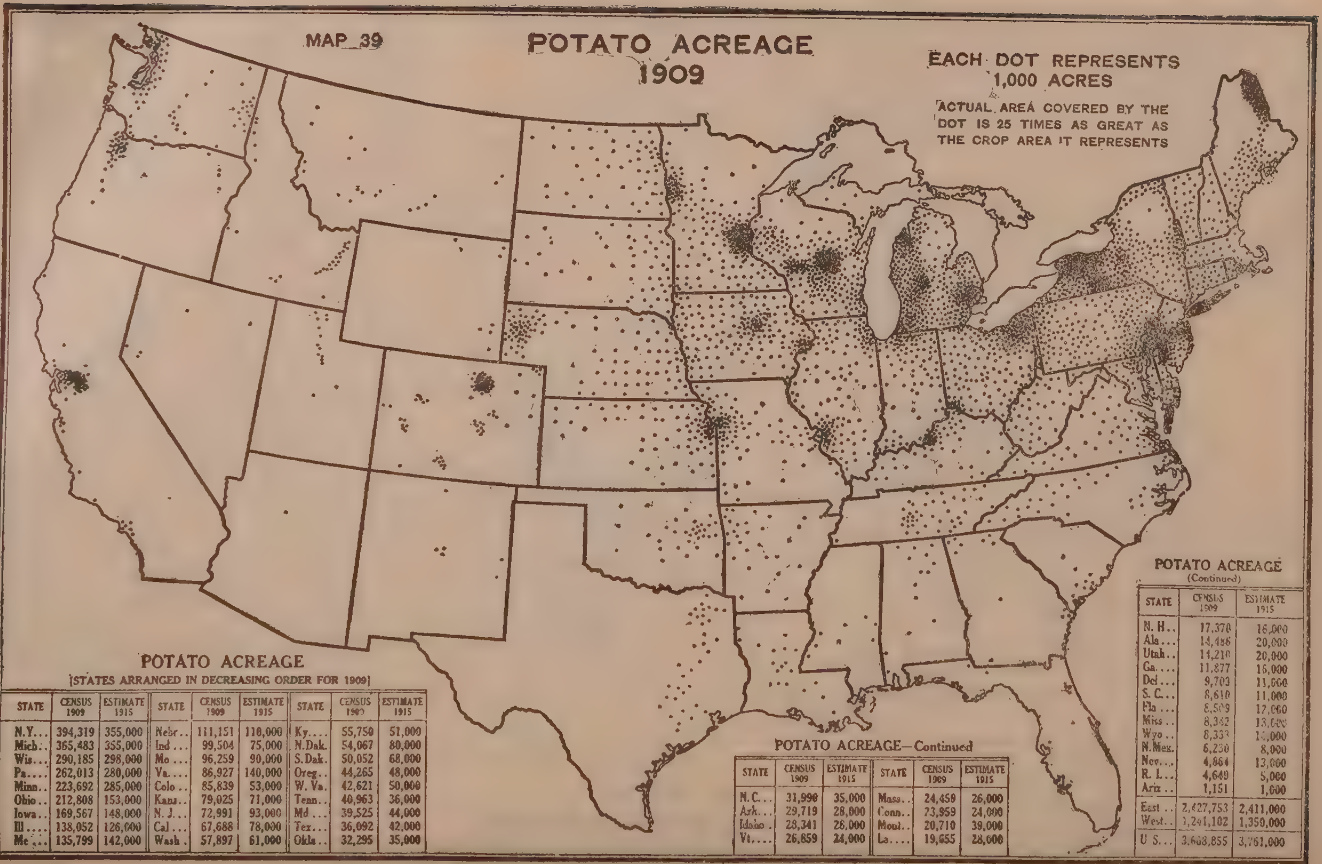
SUGAR CANE ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
La.	329,684	Fla.	12,928
Ga.	37,046	S. C.	7,053
Tex.	34,315	Ark.	3,330
Ala.	27,211	Other	421
Miss	24,861	U. S.	476,849

SORGHUM CANE ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Ky.	62,327	W. Va.	8,607
Tex.	55,027	S. C.	8,445
Tenn.	52,907	Va.	8,288
Mo.	45,088	Iowa	6,225
Ark.	33,071	Ohio	4,709
Okla	25,546	Nebr	4,034
N. C.	21,227	Colo	3,169
Miss	17,851	N. Mex.	2,371
Ala	17,819	Wis.	2,281
Ga.	15,612	Minn.	1,709
Kans.	15,406	La.	1,690
Ill	15,039	Other	3,388
Ind	12,253	U. S.	444,089

Compare with maps of corn (map 13) and alfalfa (map 30).


MAP 39
POTATO ACREAGE
1909
EACH DOT REPRESENTS 1,000 ACRES
ACTUAL AREA COVERED BY THE DOT IS 25 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

POTATO ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N.Y. . .	394,319	355,000	Nebr. .	111,151	110,000	Ky. . . .	55,750	51,000
Mich. .	365,483	355,000	Ind . . .	99,504	75,000	N.Dak.	54,067	80,000
Wis. . .	290,185	298,000	Mo . . .	96,259	90,000	S.Dak.	50,052	68,000
Pa. . . .	262,013	280,000	Va. . . .	86,927	140,000	Oreg. .	44,265	48,000
Minn. .	223,692	285,000	Colo . .	85,839	53,000	W. Va.	42,621	50,000
Ohio . .	212,808	153,000	Kans. .	79,025	71,000	Tenn. .	40,963	36,000
Iowa . .	169,567	148,000	N. J. . .	72,991	93,000	Md . . .	39,525	44,000
Ill	138,052	126,000	Cal . . .	67,688	78,000	Tex. . .	36,092	42,000
Me . . .	135,799	142,000	Wash .	57,897	61,000	Okla . .	32,295	35,000

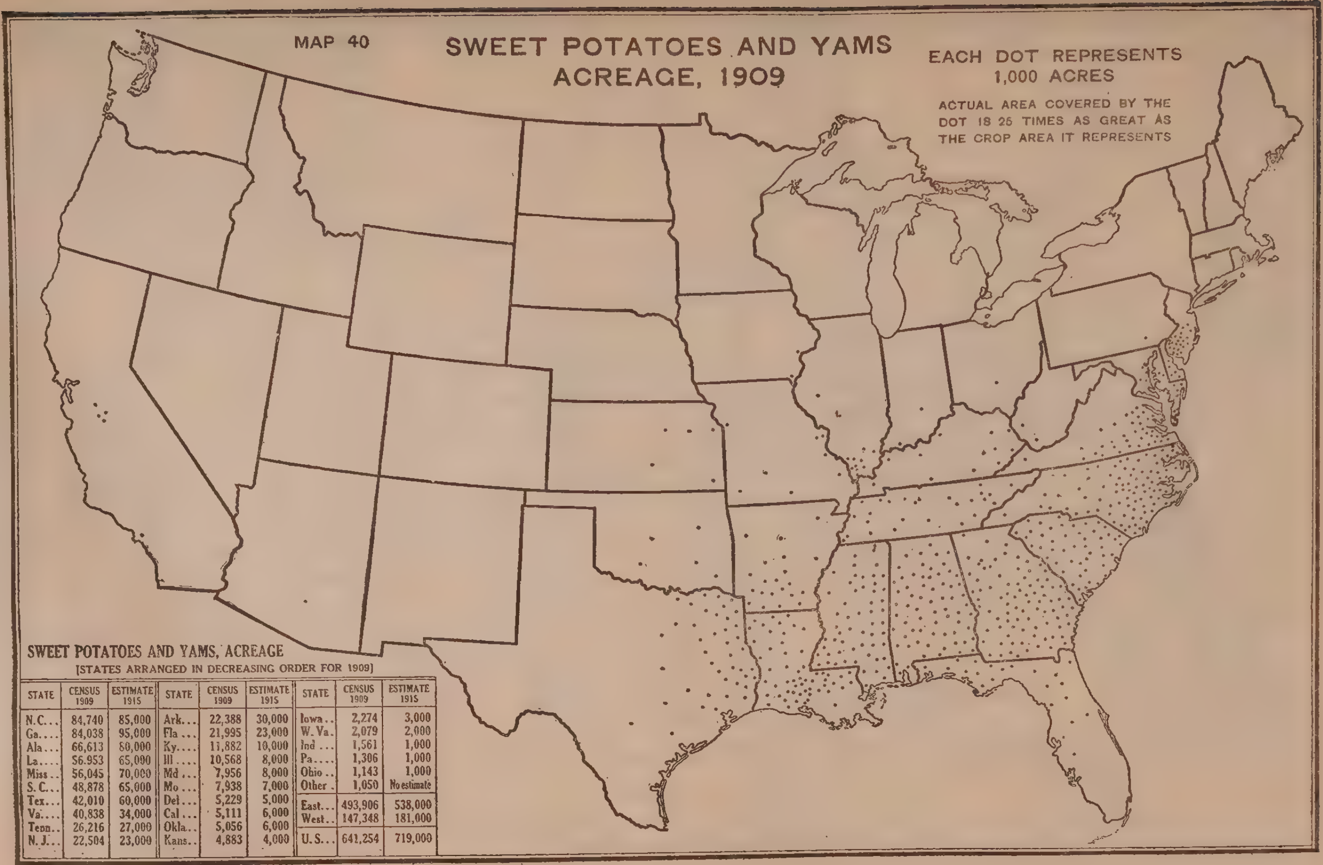
POTATO ACREAGE—Continued

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N.C. . .	31,990	35,000	Mass. .	24,459	26,000
Ark. . .	29,719	28,000	Conn. .	23,959	24,000
Idaho .	28,341	26,000	Mont. .	20,710	39,000
Vt. . . .	26,859	24,000	La. . . .	19,655	28,000

POTATO ACREAGE
(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
N. H. .	17,370	16,000
Ala . . .	14,486	20,000
Utah . .	14,210	20,000
Ga. . . .	11,877	16,000
Del . . .	9,703	11,000
S. C. . .	8,610	11,000
Fla . . .	8,509	17,000
Miss . .	8,342	13,000
Wyo . .	8,333	14,000
N.Mex.	6,230	8,000
Nev. . .	4,864	13,000
R. I. . .	4,649	5,000
Ariz . .	1,151	1,000
East . .	2,427,753	2,411,000
West. .	1,241,102	1,350,000
U S. . .	3,668,855	3,761,000

Compare with maps of total vegetables (map 41) and timothy and clover mixed (map 28).

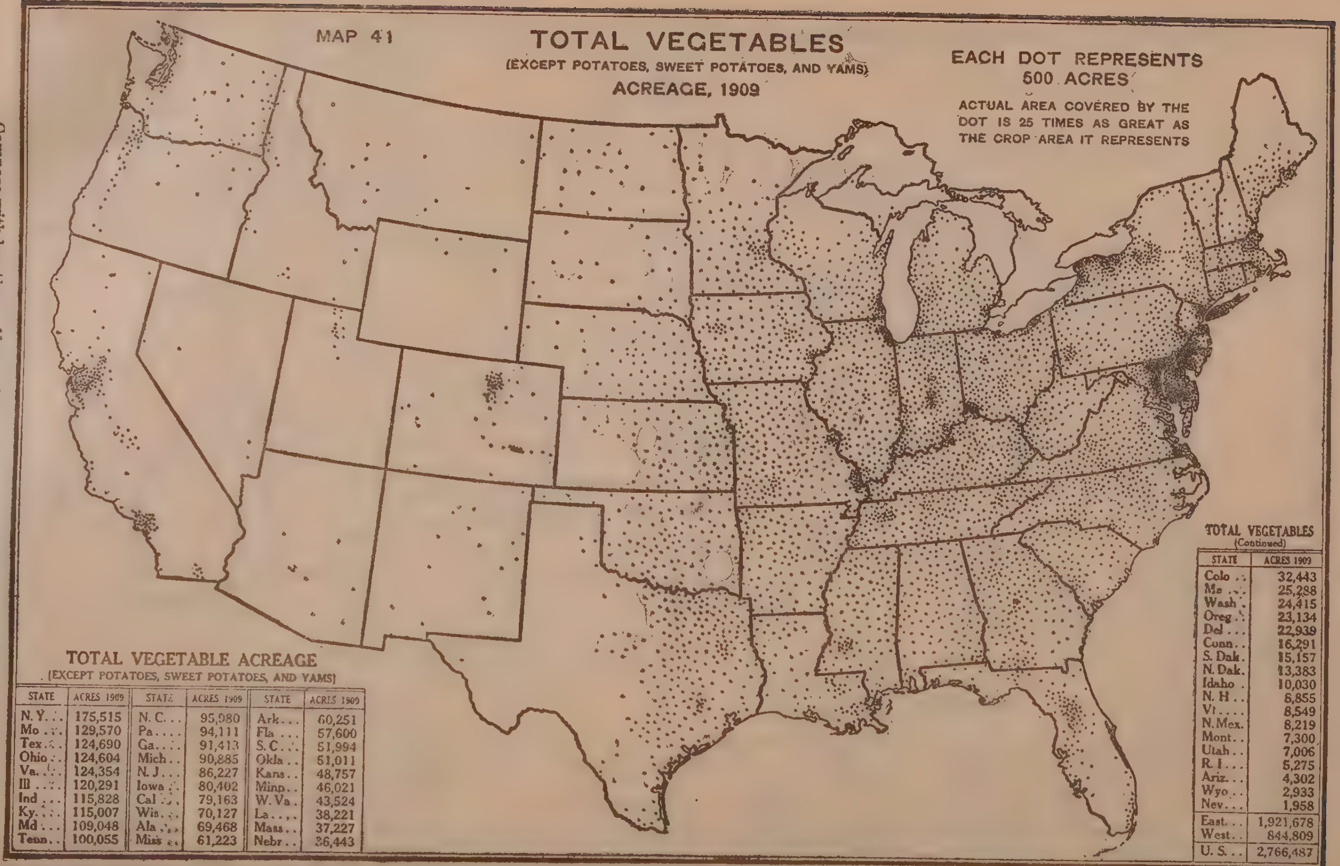

MAP 40
SWEET POTATOES AND YAMS
ACREAGE, 1909
EACH DOT REPRESENTS
1,000 ACRES
ACTUAL AREA COVERED BY THE
DOT IS 25 TIMES AS GREAT AS
THE CROP AREA IT REPRESENTS

SWEET POTATOES AND YAMS, ACREAGE

[STATES ARRANGED IN DECREASING ORDER FOR 1909]

STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N.C.	84,740	85,000	Ark.	22,388	30,000	Iowa	2,274	3,000
Ga.	84,038	95,000	Fla	21,995	23,000	W. Va.	2,079	2,000
Ala	66,613	80,000	Ky.	11,882	10,000	Ind	1,561	1,000
La.	56.953	65,000	Ill	10,568	8,000	Pa.	1,306	1,000
Miss	56,045	70,000	Md	7,956	8,000	Ohio	1,143	1,000
S. C.	48,878	65,000	Mo	7,938	7,000	Other	1,050	No estimate
Tex.	42,010	60,000	Del	5,229	5,000	East	493,906	538,000
Va.	40,838	34,000	Cal	5,111	6,000	West	147,348	181,000
Tenn.	26,216	27,000	Okla.	5,056	6,000			
N. J.	22,504	23,000	Kans.	4,883	4,000	U. S.	641,254	719,000

Compare with maps of potatoes (map 39) and cotton (map 15).



TOTAL VEGETABLES

(EXCEPT POTATOES, SWEET POTATOES, AND YAMS)

ACREAGE, 1909

EACH DOT REPRESENTS 500 ACRES

ACTUAL AREA COVERED BY THE DOT IS 25 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

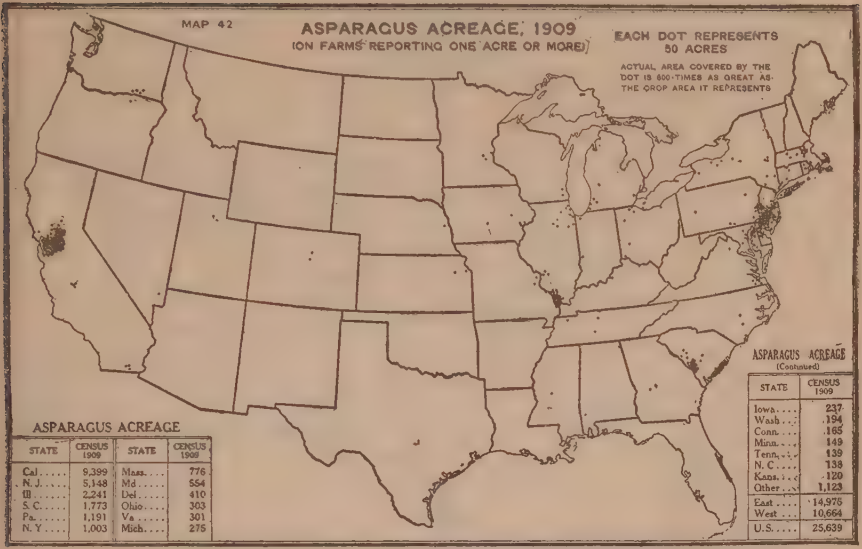
TOTAL VEGETABLE ACREAGE
(EXCEPT POTATOES, SWEET POTATOES, AND YAMS)

STATE	ACRES 1909	STATE	ACRES 1909	STATE	ACRES 1909
N. Y.	175,515	N. C.	95,980	Ark.	60,251
Mo.	129,570	Pa.	94,111	Fla.	57,600
Tex.	124,690	Ga.	91,413	S. C.	51,994
Ohio	124,604	Mich.	90,885	Okla.	51,011
Va.	124,354	N. J.	86,227	Kans.	48,757
Ill.	120,291	Iowa	80,402	Minn.	46,021
Ind.	115,828	Cal.	79,163	W. Va.	43,524
Ky.	115,007	Wis.	70,127	La.	38,221
Md.	109,048	Ala.	69,468	Mass.	37,227
Tenn.	100,055	Miss.	61,223	Nebr.	36,443

TOTAL VEGETABLES
(Continued)

STATE	ACRES 1909
Colo.	32,443
Me.	25,288
Wash.	24,415
Oreg.	23,134
Del.	22,939
Conn.	16,291
S. Dak.	15,157
N. Dak.	13,383
Idaho	10,030
N. H.	6,855
Vt.	8,549
N. Mex.	8,219
Mont.	7,300
Utah	7,006
R. I.	5,275
Ariz.	4,302
Wyo.	2,933
Nev.	1,958
East.	1,921,678
West.	844,809
U. S.	2,766,487

Compare with locations of large cities on State identification map (map 2).



MAP 42

ASPARAGUS ACREAGE, 1909
(ON FARMS REPORTING ONE ACRE OR MORE)

EACH DOT REPRESENTS
50 ACRES

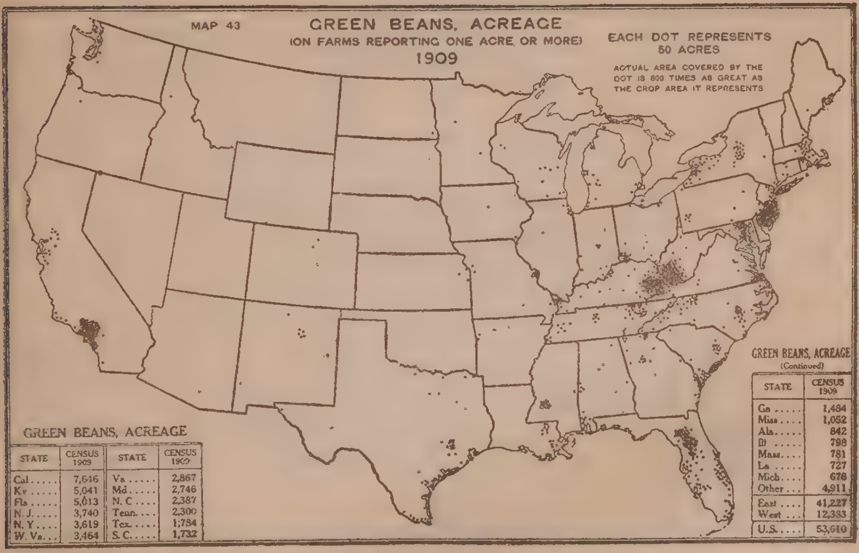
ACTUAL AREA COVERED BY THE DOT IS 600 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

ASPARAGUS ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Cal.....	9,399	Mass....	776
N. J.....	5,148	Md.....	554
Ill.....	2,241	Del.....	410
S. C.....	1,773	Ohio....	303
Pa.....	1,191	Va.....	301
N. Y....	1,003	Mich....	275

ASPARAGUS ACREAGE
(Continued)

STATE	CENSUS 1909
Iowa....	237
Wash...	194
Conn....	165
Minn....	149
Tenn....	139
N. C....	138
Kans....	120
Other...	1,123
East....	14,975
West...	10,664
U.S....	25,639



MAP 43

GREEN BEANS, ACREAGE
(ON FARMS REPORTING ONE ACRE OR MORE)
1909

EACH DOT REPRESENTS
50 ACRES

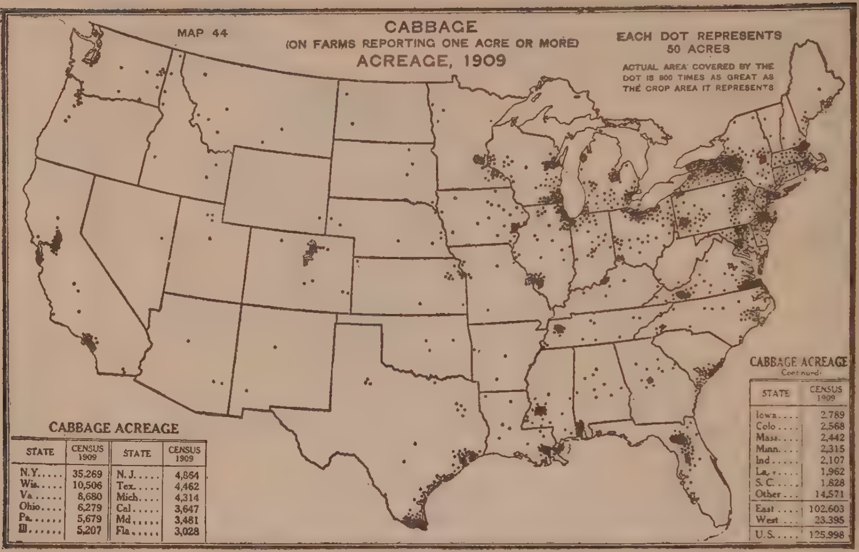
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

GREEN BEANS, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Cal.....	7,646	Va.....	2,867
Ky.....	5,041	Md.....	2,746
Fla.....	5,013	N. C....	2,387
N. J.....	3,740	Tenn....	2,300
N. Y....	3,619	Tex....	1,784
W. Va...	3,464	S. C.....	1,732

GREEN BEANS, ACREAGE
(Continued)

STATE	CENSUS 1909
Ga.....	1,484
Miss....	1,052
Ala.....	842
Ill.....	798
Mass....	781
La.....	727
Mich....	676
Other...	4,911
East....	41,227
West...	12,383
U.S....	53,610

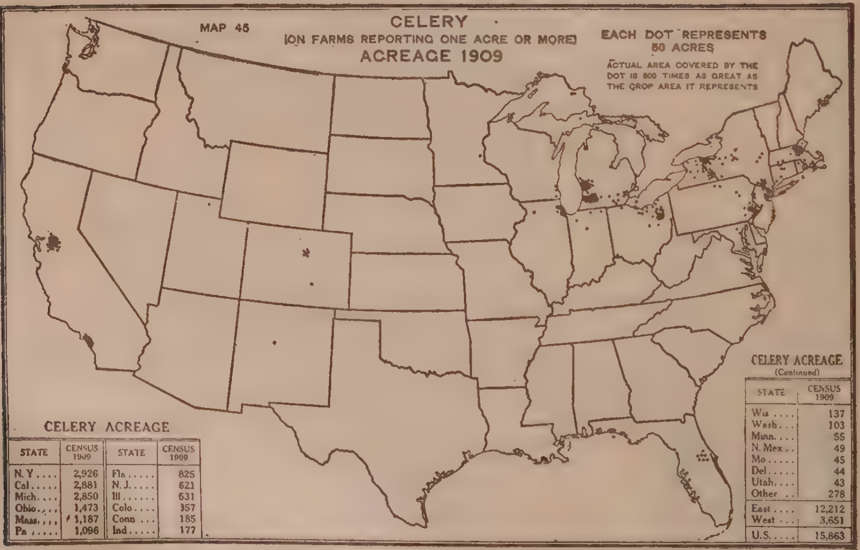

MAP 44
CABBAGE
(ON FARMS REPORTING ONE ACRE OR MORE)
ACREAGE, 1909
EACH DOT REPRESENTS
50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

CABBAGE ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
N.Y.	35,269	N. J.	4,864
Wis.	10,506	Tex.	4,462
Va.	8,680	Mich.	4,314
Ohio	6,279	Cal.	3,647
Pa.	5,679	Md.	3,481
Ill.	5,207	Fla.	3,028

CABBAGE ACREAGE
(Continued)

STATE	CENSUS 1909
Iowa	2,789
Colo	2,568
Mass.	2,442
Minn.	2,315
Ind.	2,107
La.	1,962
S. C.	1,828
Other	14,571
East	102,603
West	23,395
U.S.	125,998

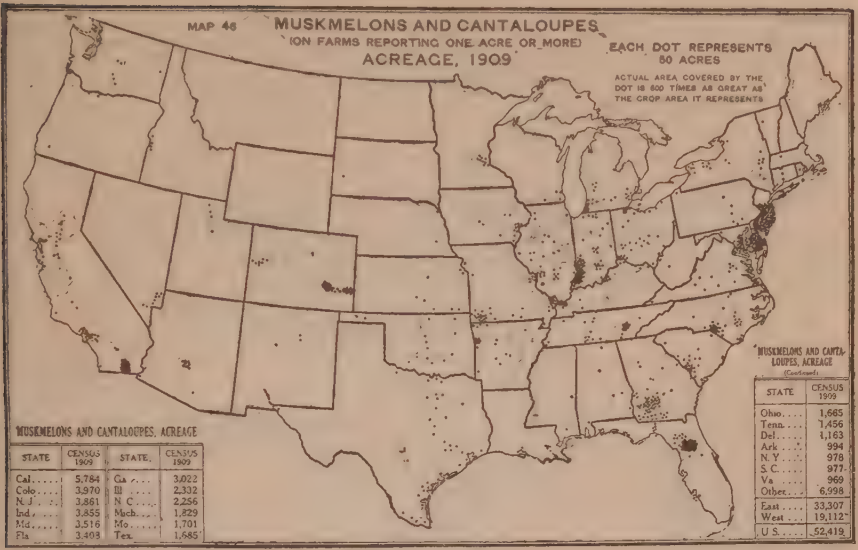

MAP 45
CELERY
(ON FARMS REPORTING ONE ACRE OR MORE)
ACREAGE 1909
EACH DOT REPRESENTS
50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

CELERY ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
N. Y.	2,926	Fla.	825
Cal.	2,881	N. J.	621
Mich.	2,850	Ill.	631
Ohio	1,473	Colo	357
Mass.	1,187	Conn	185
Pa.	1,096	Ind.	177

CELERY ACREAGE
(Continued)

STATE	CENSUS 1909
Wis	137
Wash.	103
Minn.	55
N. Mex.	49
Mo.	45
Del.	44
Utah.	43
Other	278
East	12,212
West	3,651
U.S.	15,863

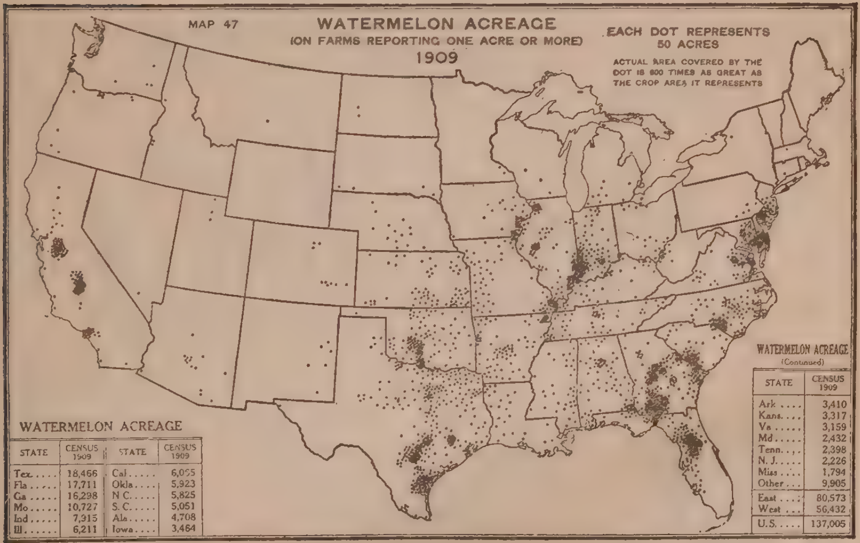

MAP 46
MUSKMELONS AND CANTALOUPES
(ON FARMS REPORTING ONE ACRE OR MORE)
ACREAGE, 1909
EACH DOT REPRESENTS 50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 600 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

MUSKMELONS AND CANTALOUPES, ACREAGE

STATE	CENSUS 1909	STATE.	CENSUS 1909
Cal.	5,784	Ga	3,022
Colo. . . .	3,970	Ill	2,332
N. J. . . .	3,861	N. C. . . .	2,256
Ind. . . .	3,855	Mich. . . .	1,829
Md.	3,516	Mo.	1,701
Fla	3,403	Tex.	1,685

MUSKMELONS AND CANTALOUPES, ACREAGE
(Continued)

STATE	CENSUS 1909
Ohio. . . .	1,665
Tenn. . . .	1,456
Del.	1,163
Ark	994
N. Y. . . .	978
S. C.	977
Va	969
Other. . . .	6,998
East	33,307
West . . .	19,112
U. S.	52,419

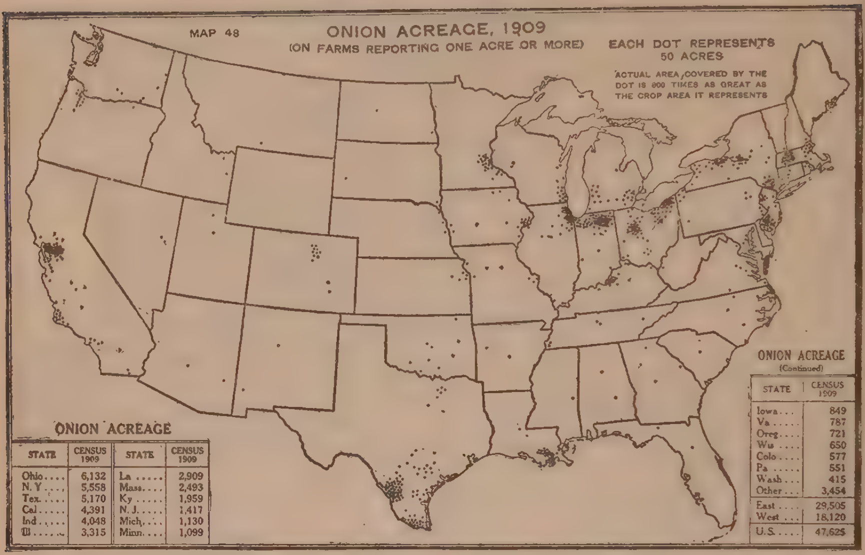

MAP 47
WATERMELON ACREAGE
(ON FARMS REPORTING ONE ACRE OR MORE)
1909
EACH DOT REPRESENTS 50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 600 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

WATERMELON ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Tex.	18,466	Cal.	6,055
Fla	17,711	Okla. . . .	5,923
Ga	16,298	N. C.	5,825
Mo	10,727	S. C.	5,051
Ind	7,315	Ala.	4,708
Ill.	6,211	Iowa. . . .	3,464

WATERMELON ACREAGE
(Continued)

STATE	CENSUS 1909
Ark	3,410
Kans. . . .	3,317
Va	3,159
Md.	2,432
Tenn. . . .	2,398
N. J.	2,226
Miss	1,794
Other . . .	9,905
East	80,573
West . . .	56,432
U.S.	137,005

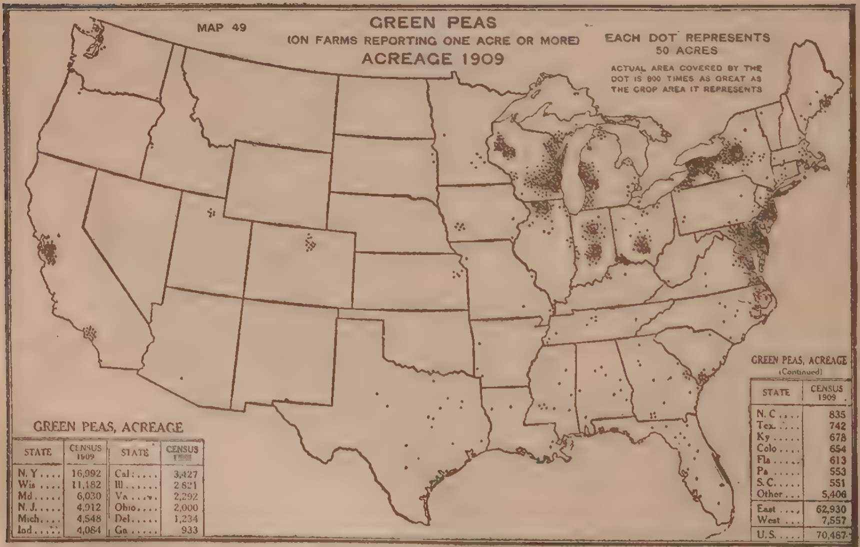

MAP 48
ONION ACREAGE, 1909
(ON FARMS REPORTING ONE ACRE OR MORE)
EACH DOT REPRESENTS 50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

ONION ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Ohio	6,132	La	2,909
N. Y	5,558	Mass	2,493
Tex	5,170	Ky	1,959
Cal	4,391	N. J	1,417
Ind	4,048	Mich	1,130
Ill	3,315	Minn	1,099

ONION ACREAGE
(Continued)

STATE	CENSUS 1909
Iowa	849
Va	787
Oreg	721
Wis	650
Colo	577
Pa	551
Wash	415
Other	3,454
East	29,505
West	18,120
U.S.	47,625

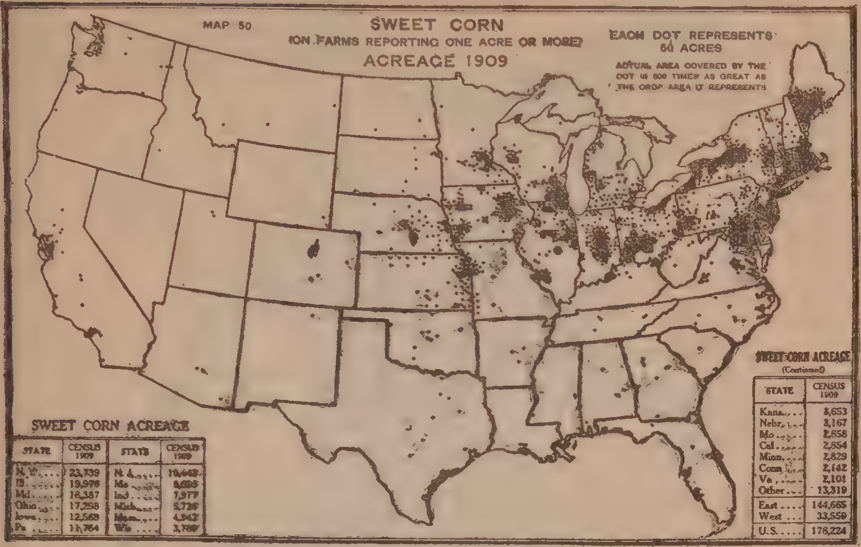

MAP 49
GREEN PEAS
(ON FARMS REPORTING ONE ACRE OR MORE)
ACREAGE 1909
EACH DOT REPRESENTS 50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

GREEN PEAS, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS [illegible]
N. Y	16,992	Cal	3,427
Wis	11,182	Ill	2,821
Md	6,030	Va	2,292
N. J	4,912	Ohio	2,000
Mich	4,548	Del	1,234
Ind	4,084	Ga	933

GREEN PEAS, ACREAGE
(Continued)

STATE	CENSUS 1909
N. C	835
Tex	742
Ky	678
Colo	654
Fla	613
Pa	553
S. C	551
Other	5,406
East	62,930
West	7,557
U.S.	70,487

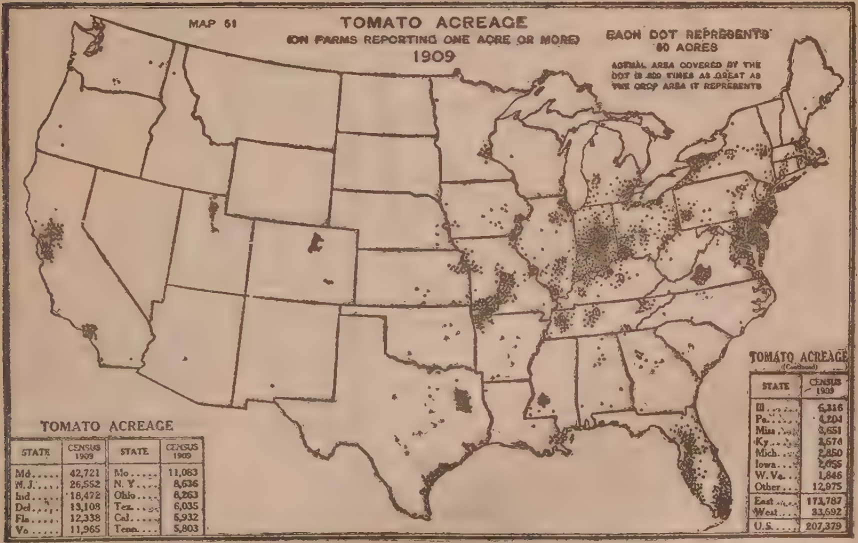

MAP 50
SWEET CORN
(ON FARMS REPORTING ONE ACRE OR MORE)
ACREAGE 1909
EACH DOT REPRESENTS 50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

SWEET CORN ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
N. Y.	23,739	N. J.	10,442
Ill.	19,976	Me	8,698
Md.	18,387	Ind.	7,977
Ohio	17,298	Mich. ...	5,726
Iowa	12,563	Mass. ...	4,942
Pa.	11,764	Wis.	3,789

SWEET CORN ACREAGE
(Continued)

STATE	CENSUS 1909
Kans.	3,653
Nebr.	3,167
Mo	2,858
Cal.	2,854
Minn.	2,829
Conn.	2,142
Va.	2,101
Other	13,319
East	144,665
West	33,559
U.S.	178,224

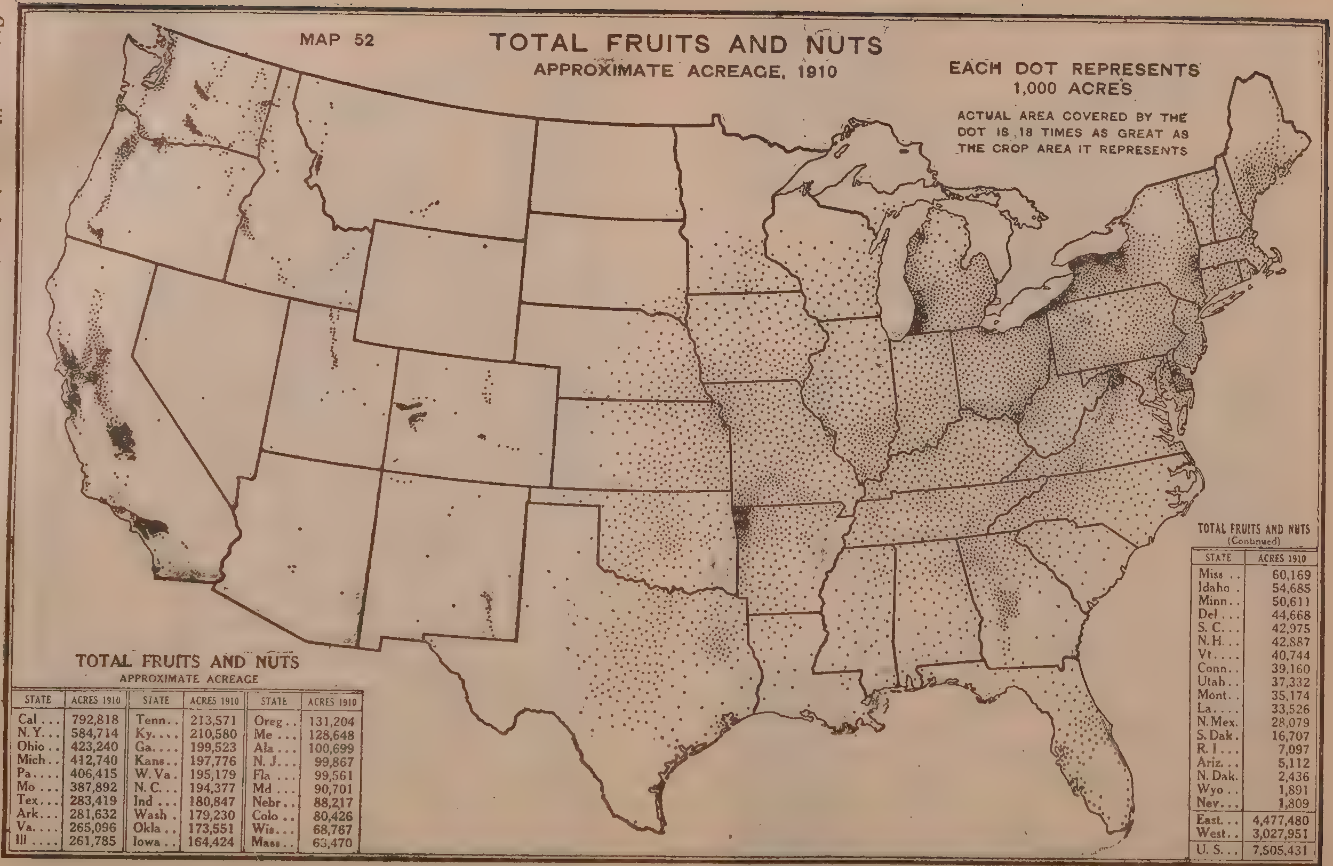

MAP 51
TOMATO ACREAGE
(ON FARMS REPORTING ONE ACRE OR MORE)
1909
EACH DOT REPRESENTS 50 ACRES
ACTUAL AREA COVERED BY THE DOT IS 800 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

TOMATO ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Md.	42,721	Mo	11,063
N. J.	26,552	N. Y.	8,636
Ind.	18,472	Ohio	8,263
Del.	13,108	Tex.	6,035
Fla.	12,338	Cal.	5,932
Va.	11,965	Tenn. ...	5,803

TOMATO ACREAGE
(Continued)

STATE	CENSUS 1909
Ill.	5,336
Pa.	4,204
Miss.	3,651
Ky.	3,574
Mich.	2,850
Iowa	2,055
W. Va. ...	1,846
Other	12,975
East	173,787
West	33,592
U.S.	207,379



MAP 52

TOTAL FRUITS AND NUTS

APPROXIMATE ACREAGE, 1910

EACH DOT REPRESENTS 1,000 ACRES

ACTUAL AREA COVERED BY THE DOT IS 18 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

TOTAL FRUITS AND NUTS

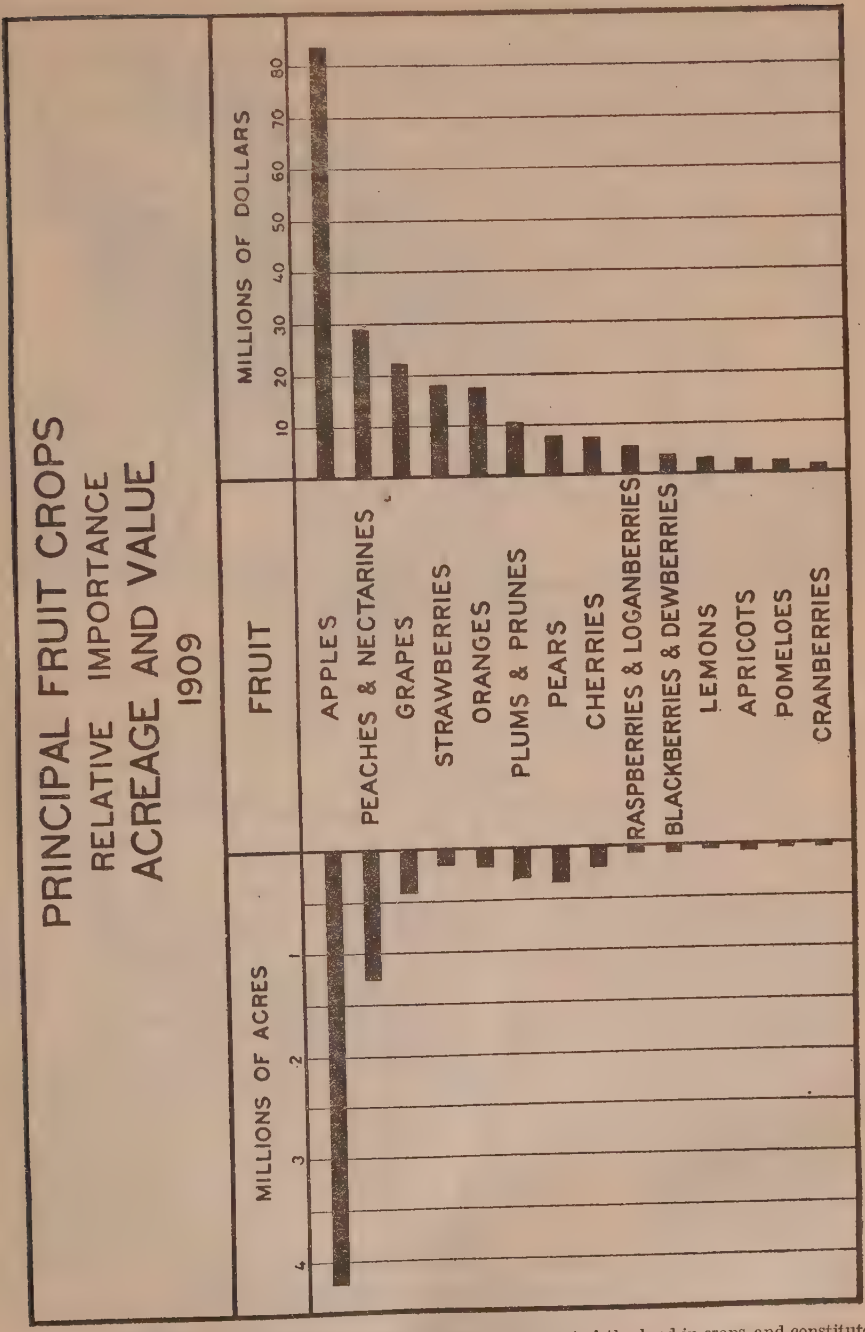
APPROXIMATE ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910	STATE	ACRES 1910
Cal . . .	792,818	Tenn. .	213,571	Oreg . .	131,204
N. Y. . .	584,714	Ky. . . .	210,580	Me . . .	128,648
Ohio . .	423,240	Ga. . . .	199,523	Ala . . .	100,699
Mich . .	412,740	Kans . .	197,776	N. J. . .	99,867
Pa	406,415	W. Va .	195,179	Fla . . .	99,561
Mo . . .	387,892	N. C. . .	194,377	Md . . .	90,701
Tex . . .	283,419	Ind . . .	180,847	Nebr . .	88,217
Ark . . .	281,632	Wash .	179,230	Colo . .	80,426
Va	265,096	Okla . .	173,551	Wis . . .	68,767
Ill	261,785	Iowa . .	164,424	Mass . .	63,470

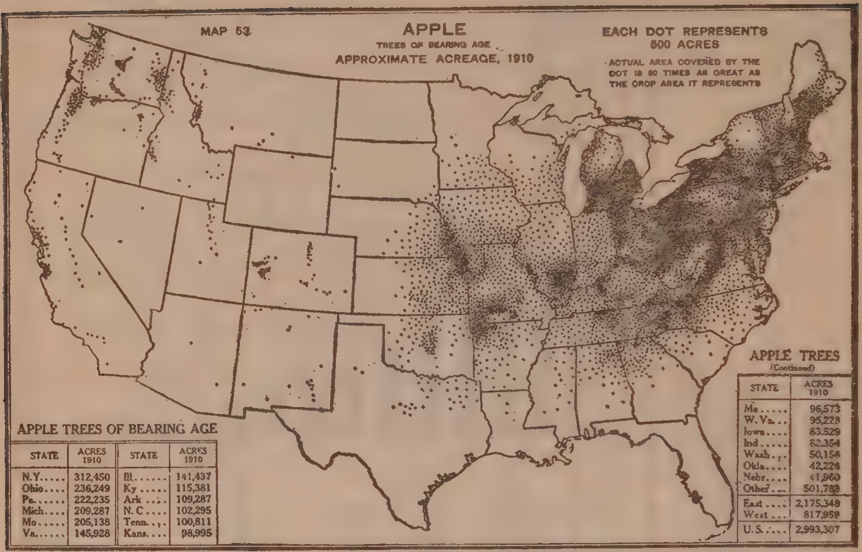
TOTAL FRUITS AND NUTS (Continued)

STATE	ACRES 1910
Miss . .	60,169
Idaho .	54,685
Minn . .	50,611
Del . . .	44,668
S. C. . .	42,975
N. H. . .	42,887
Vt	40,744
Conn . .	39,160
Utah . .	37,332
Mont . .	35,174
La	33,526
N. Mex.	28,079
S. Dak.	16,707
R. I . . .	7,097
Ariz . . .	5,112
N. Dak.	2,436
Wyo . .	1,891
Nev . . .	1,809
East . . .	4,477,480
West . .	3,027,951
U. S. . .	7,505,431

Compare with map of value of farm land per acre (map 10) and with the maps of the different fruits.



GRAPH 3.—Fruits and nuts occupy in the United States 2.4 per cent of the land in crops and constitute 4.5 per cent of the value of all crops.


MAP 53
APPLE
TREES OF BEARING AGE
APPROXIMATE ACREAGE, 1910
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

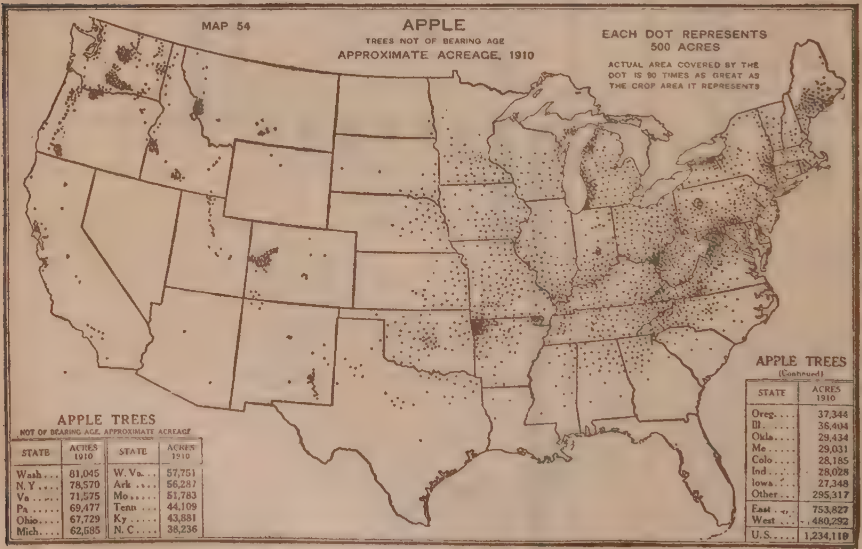
APPLE TREES OF BEARING AGE

STATE	ACRES 1910	STATE	ACRES 1910
N.Y.	312,450	Ill.	141,437
Ohio	236,249	Ky	115,381
Pa.	222,235	Ark	109,287
Mich.	209,287	N. C	102,295
Mo	205,138	Tenn.	100,811
Va.	145,928	Kans.	98,995

APPLE TREES (Continued)

STATE	ACRES 1910
Me	96,573
W. Va.	95,225
Iowa	83,529
Ind	82,354
Wash.	50,156
Okla.	42,226
Nebr.	41,960
Other	501,783
East	2,175,348
West	817,959
U.S.	2,993,307

Compare eastern with western states.


MAP 54
APPLE
TREES NOT OF BEARING AGE
APPROXIMATE ACREAGE, 1910
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

APPLE TREES
NOT OF BEARING AGE, APPROXIMATE ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910
Wash	81,045	W. Va.	57,751
N. Y	78,570	Ark	56,287
Va	71,575	Mo	51,783
Pa	69,477	Tenn	44,109
Ohio	67,729	Ky	43,881
Mich.	62,585	N. C	38,236

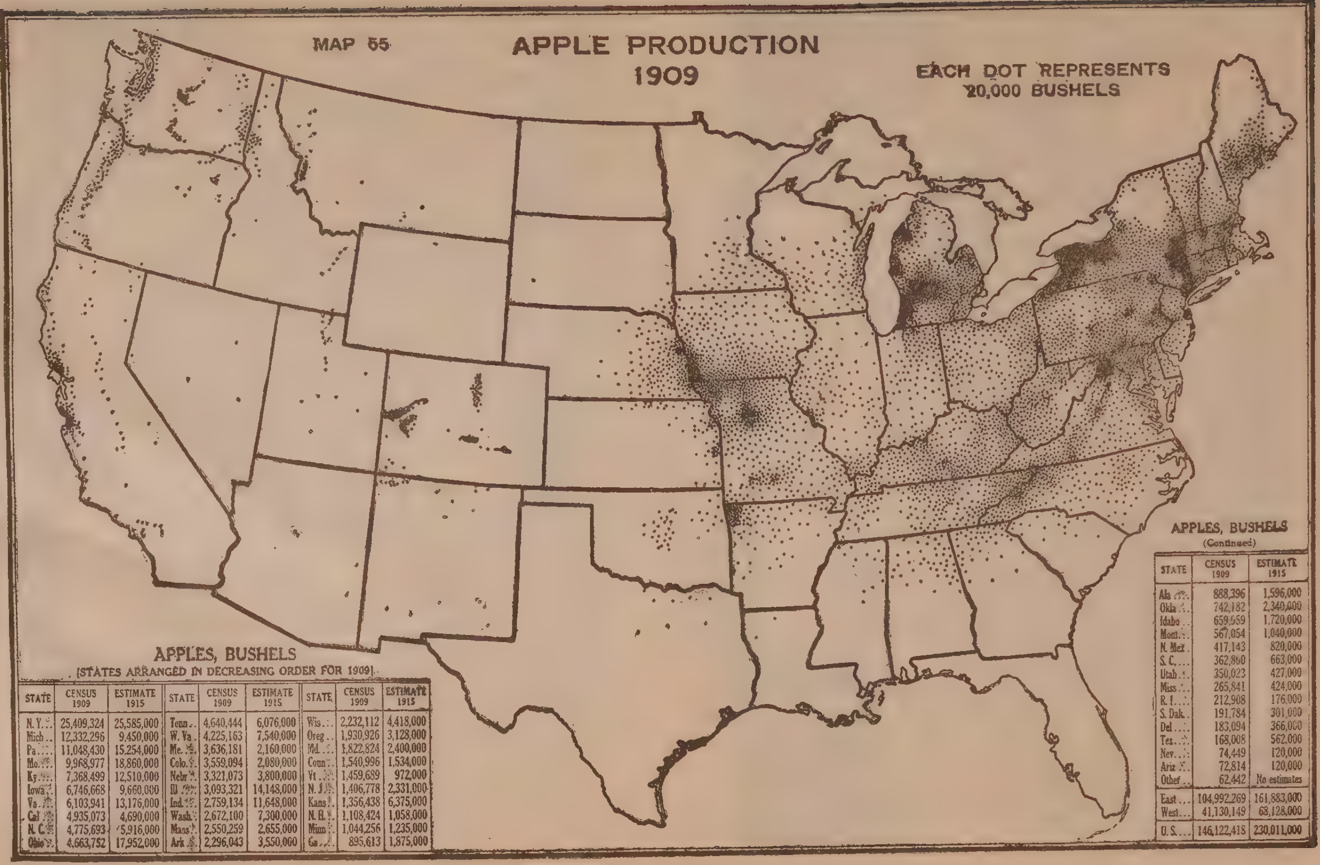
APPLE TREES (Continued)

STATE	ACRES 1910
Oreg.	37,344
Ill.	36,404
Okla.	29,434
Me	29,031
Colo	28,185
Ind	28,028
Iowa	27,348
Other	295,317
East	753,827
West	480,292
U.S.	1,234,118

Compare Washington and Colorado with New York and Missouri.

MAP 55

APPLE PRODUCTION 1909



APPLES, BUSHELS

(STATES ARRANGED IN DECREASING ORDER FOR 1909).

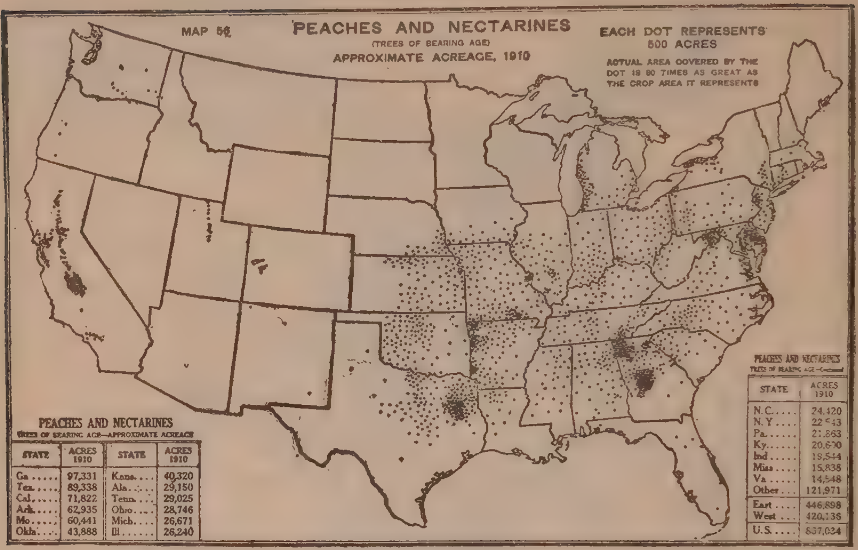
STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915	STATE	CENSUS 1909	ESTIMATE 1915
N. Y. . .	25,409,324	25,585,000	Tenn. .	4,640,444	6,076,000	Wis. . .	2,232,112	4,418,000
Mich. . .	12,332,296	9,450,000	W. Va. .	4,225,163	7,540,000	Oreg. . .	1,930,926	3,128,000
Pa. . . .	11,048,430	15,254,000	Me. . .	3,636,181	2,160,000	Md. . .	1,822,824	2,400,000
Mo. . . .	9,968,977	18,860,000	Colo. . .	3,559,094	2,080,000	Conn. . .	1,540,996	1,534,000
Ky. . . .	7,368,499	12,510,000	Nebr. . .	3,321,073	3,800,000	Vt. . .	1,459,689	972,000
Iowa . .	6,746,668	9,660,000	Ill. . .	3,093,321	14,148,000	N. J. .	1,406,778	2,331,000
Va. . .	6,103,941	13,176,000	Ind. . .	2,759,134	11,648,000	Kans. . .	1,356,438	6,375,000
Cal. . .	4,935,073	4,690,000	Wash. .	2,672,100	7,300,000	N. H. . .	1,108,424	1,058,000
N. C. .	4,775,693	5,916,000	Mass. . .	2,550,259	2,655,000	Minn. . .	1,044,256	1,235,000
Ohio . .	4,663,752	17,952,000	Ark. . .	2,296,043	3,550,000	Ga. . .	895,613	1,875,000

APPLES, BUSHELS

(Continued)

STATE	CENSUS 1909	ESTIMATE 1915
Ala. . .	888,396	1,596,000
Okla. . .	742,182	2,340,000
Idaho . .	659,559	1,720,000
Mont. . .	567,054	1,040,000
N. Mex. .	417,143	820,000
S. C. . . .	362,860	663,000
Utah . .	350,023	427,000
Miss. . .	265,841	424,000
R. I. . . .	212,908	176,000
S. Dak. .	191,784	301,000
Del. . . .	183,094	366,000
Tex. . . .	168,008	562,000
Nev. . .	74,449	120,000
Ariz. . .	72,814	120,000
Other . .	62,442	No estimates
East . . .	104,992,269	161,883,000
West . . .	41,130,149	68,128,000
U. S. . . .	146,122,418	230,011,000

The apple crop varies greatly from year to year with seasonal and other conditions.


MAP 56
PEACHES AND NECTARINES
(TREES OF BEARING AGE)
APPROXIMATE ACREAGE, 1910
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

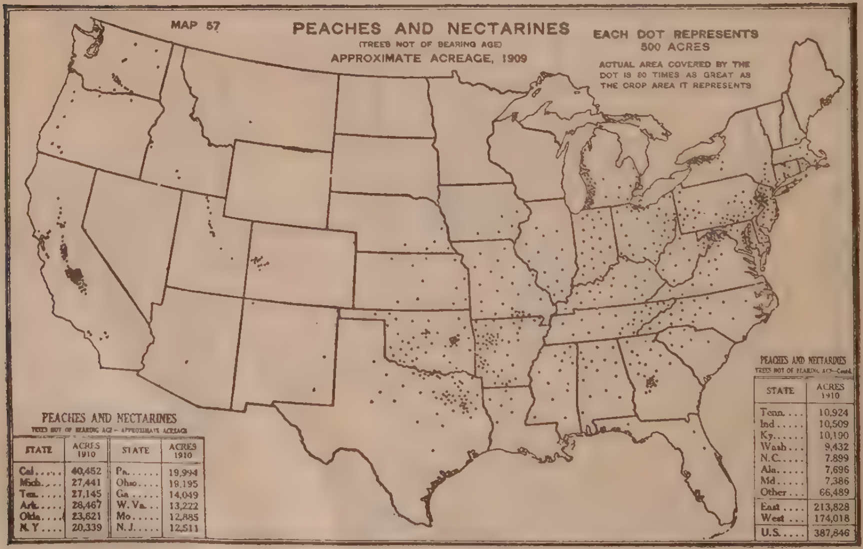
PEACHES AND NECTARINES
TREES OF BEARING AGE—APPROXIMATE ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910
Ga.	97,331	Kans. . . .	40,320
Tex.	89,338	Ala.	29,150
Cal.	71,822	Tenn. . . .	29,025
Ark.	62,935	Ohio. . . .	28,746
Mo.	60,441	Mich. . . .	26,671
Okla. . . .	43,888	Ill.	26,240

PEACHES AND NECTARINES
TREES OF BEARING AGE—Continued

STATE	ACRES 1910
N.C.	24,420
N.Y.	22,543
Pa.	21,863
Ky.	20,690
Ind	19,544
Miss	15,838
Va	14,548
Other . . .	121,971
East	446,898
West . . .	420,136
U.S.	867,034

Compare with map of apple trees of bearing age (map 53).


MAP 57
PEACHES AND NECTARINES
(TREES NOT OF BEARING AGE)
APPROXIMATE ACREAGE, 1909
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

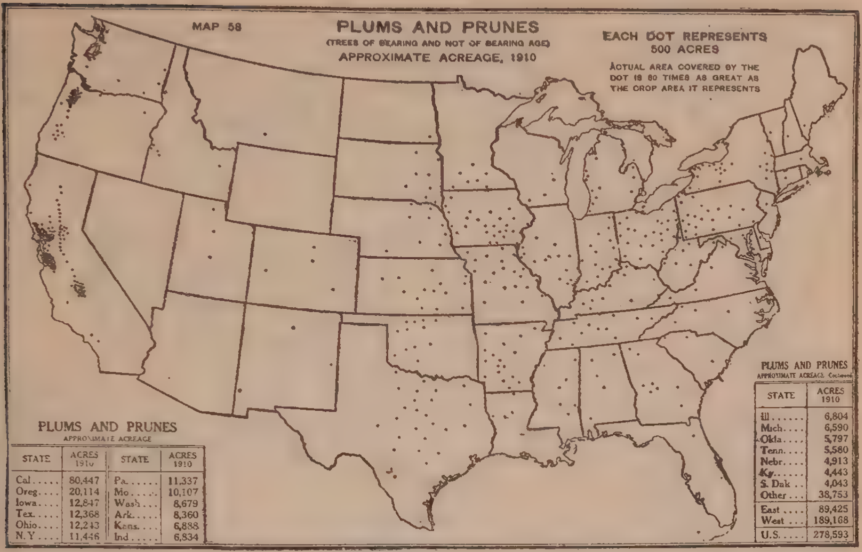
PEACHES AND NECTARINES
TREES NOT OF BEARING AGE – APPROXIMATE ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910
Cal.	40,452	Pa.	19,994
Mich. . . .	27,441	Ohio	18,195
Tex.	27,145	Ga.	14,049
Ark.	28,467	W. Va. . .	13,222
Okla. . . .	23,621	Mo.	12,885
N. Y. . . .	20,339	N. J.	12,511

PEACHES AND NECTARINES
TREES NOT OF BEARING AGE—Cont'd.

STATE	ACRES 1910
Tenn. . . .	10,924
Ind	10,509
Ky.	10,190
Wash . . .	9,432
N.C.	7,899
Ala.	7,696
Md	7,386
Other . . .	66,489
East	213,828
West . . .	174,018
U.S.	387,846

Compare with map of apple trees not of bearing age (map 54).


MAP 58
PLUMS AND PRUNES
(TREES OF BEARING AND NOT OF BEARING AGE)
APPROXIMATE ACREAGE, 1910
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

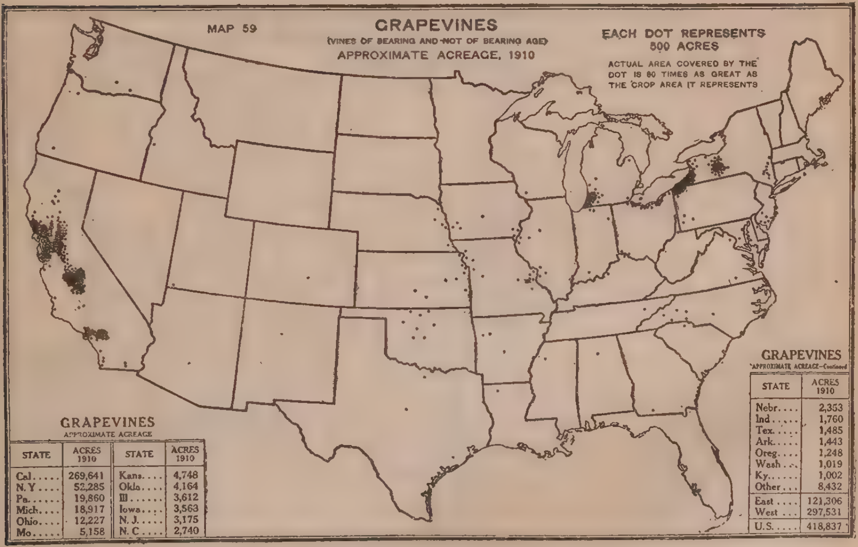
PLUMS AND PRUNES
APPROXIMATE ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910
Cal.....	80,447	Pa......	11,337
Oreg....	20,114	Mo......	10,107
Iowa....	12,847	Wash....	8,679
Tex.....	12,368	Ark.....	8,360
Ohio....	12,243	Kans....	6,888
N.Y.....	11,446	Ind.....	6,834

PLUMS AND PRUNES
APPROXIMATE ACREAGE—Continued

STATE	ACRES 1910
Ill......	6,804
Mich....	6,590
Okla....	5,797
Tenn....	5,580
Nebr....	4,913
Ky......	4,443
S. Dak ..	4,043
Other ...	38,753
East	89,425
West ...	189,168
U.S.	278,593

Compare with maps of peaches and nectarines (maps 56 and 57).


MAP 59
GRAPEVINES
(VINES OF BEARING AND NOT OF BEARING AGE)
APPROXIMATE ACREAGE, 1910
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

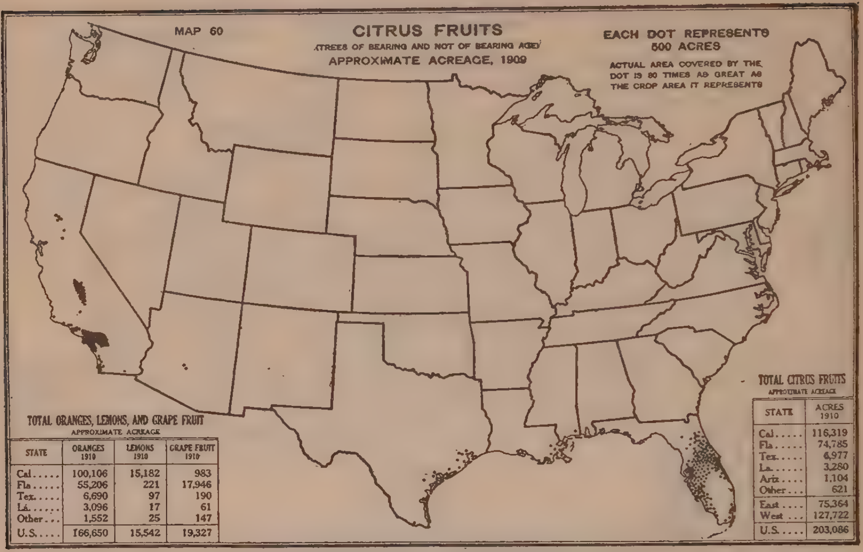
GRAPEVINES
APPROXIMATE ACREAGE

STATE	ACRES 1910	STATE	ACRES 1910
Cal.....	269,641	Kans....	4,748
N.Y.....	52,285	Okla....	4,164
Pa......	19,860	Ill......	3,612
Mich....	18,917	Iowa....	3,563
Ohio....	12,227	N.J.....	3,175
Mo.....	5,158	N.C.....	2,740

GRAPEVINES
APPROXIMATE ACREAGE—Continued

STATE	ACRES 1910
Nebr....	2,353
Ind.....	1,760
Tex.....	1,485
Ark.....	1,443
Oreg....	1,248
Wash....	1,019
Ky......	1,002
Other ...	8,432
East	121,306
West ...	297,531
U.S.	418,837

Compare with maps of apples (maps 53 and 54), peaches and nectarines (maps 56 and 57), and plums and prunes (map 58).


MAP 60
CITRUS FRUITS
(TREES OF BEARING AND NOT OF BEARING AGE)
APPROXIMATE ACREAGE, 1909
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

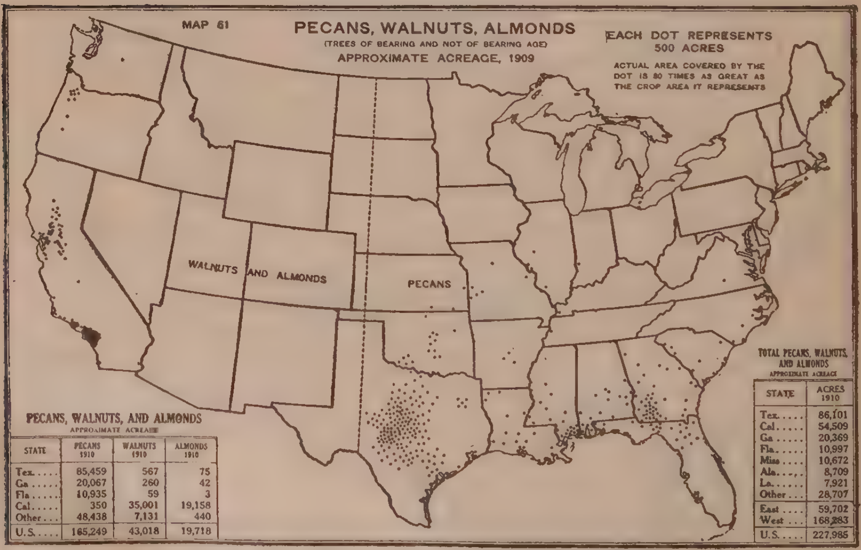
TOTAL ORANGES, LEMONS, AND GRAPE FRUIT
APPROXIMATE ACREAGE

STATE	ORANGES 1910	LEMONS 1910	GRAPE FRUIT 1910
Cal.	100,106	15,182	983
Fla.	55,206	221	17,946
Tex.	6,690	97	190
La.	3,096	17	61
Other . . .	1,552	25	147
U.S.	166,650	15,542	19,327

TOTAL CITRUS FRUITS
APPROXIMATE ACREAGE

STATE	ACRES 1910
Cal.	116,319
Fla.	74,785
Tex.	6,977
La.	3,280
Ariz. . . .	1,104
Other . . .	621
East	75,364
West . . .	127,722
U.S.	203,086

Compare with map of agricultural provinces (map 1).


MAP 61
PECANS, WALNUTS, ALMONDS
(TREES OF BEARING AND NOT OF BEARING AGE)
APPROXIMATE ACREAGE, 1909
EACH DOT REPRESENTS 500 ACRES
ACTUAL AREA COVERED BY THE DOT IS 80 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS
WALNUTS AND ALMONDS
PECANS

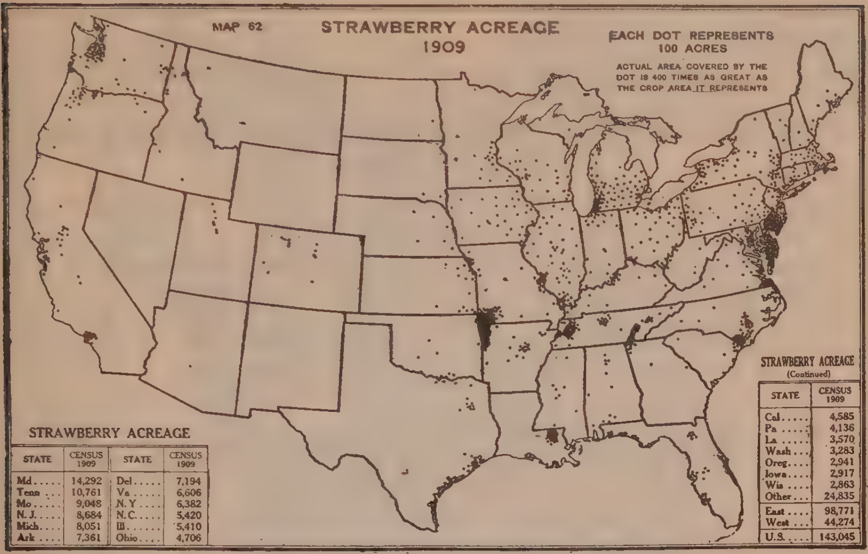
PECANS, WALNUTS, AND ALMONDS
APPROXIMATE ACREAGE

STATE	PECANS 1910	WALNUTS 1910	ALMONDS 1910
Tex.	85,459	567	75
Ga.	20,067	260	42
Fla.	10,935	59	3
Cal.	350	35,001	19,158
Other . . .	48,438	7,131	440
U.S.	165,249	43,018	19,718

TOTAL PECANS, WALNUTS, AND ALMONDS
APPROXIMATE ACREAGE

STATE	ACRES 1910
Tex.	86,101
Cal.	54,509
Ga.	20,369
Fla.	10,997
Miss	10,672
Ala.	8,709
La.	7,921
Other . . .	28,707
East	59,702
West . . .	168,283
U.S.	227,985

Compare with maps of citrus fruits (map 60) and grapes (map 59).


MAP 62
STRAWBERRY ACREAGE
1909
EACH DOT REPRESENTS
100 ACRES
ACTUAL AREA COVERED BY THE DOT IS 400 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

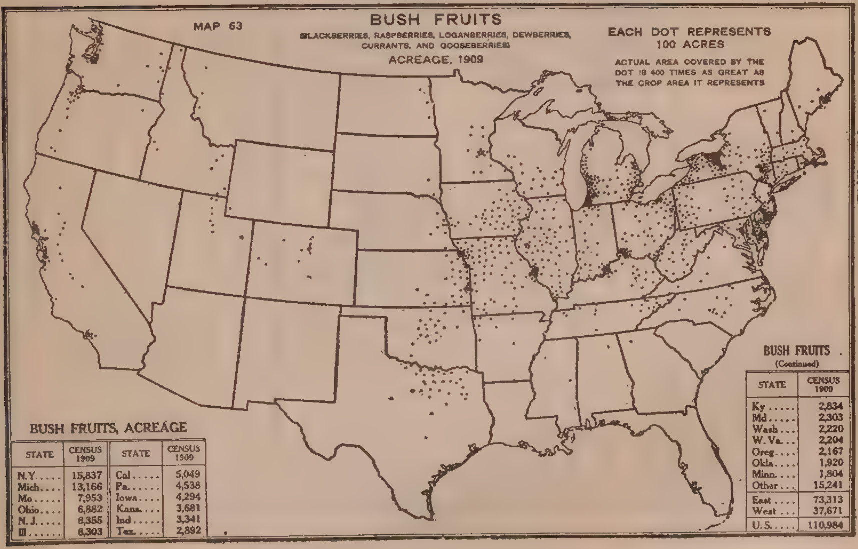
STRAWBERRY ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
Md.....	14,292	Del.....	7,194
Tenn ...	10,761	Va	6,606
Mo.....	9,048	N. Y	6,382
N. J.....	8,684	N. C.....	5,420
Mich....	8,051	Ill......	5,410
Ark	7,361	Ohio....	4,706

STRAWBERRY ACREAGE
(Continued)

STATE	CENSUS 1909
Cal.....	4,585
Pa	4,136
La	3,570
Wash ...	3,283
Oreg....	2,941
Iowa....	2,917
Wis	2,863
Other ...	24,835
East	98,771
West ...	44,274
U.S.	143,045

Compare with maps of apples (maps 53 and 54) and peaches and nectarines (maps 56 and 57).


MAP 63
BUSH FRUITS
(BLACKBERRIES, RASPBERRIES, LOGANBERRIES, DEWBERRIES, CURRANTS, AND GOOSEBERRIES)
ACREAGE, 1909
EACH DOT REPRESENTS
100 ACRES
ACTUAL AREA COVERED BY THE DOT IS 400 TIMES AS GREAT AS THE CROP AREA IT REPRESENTS

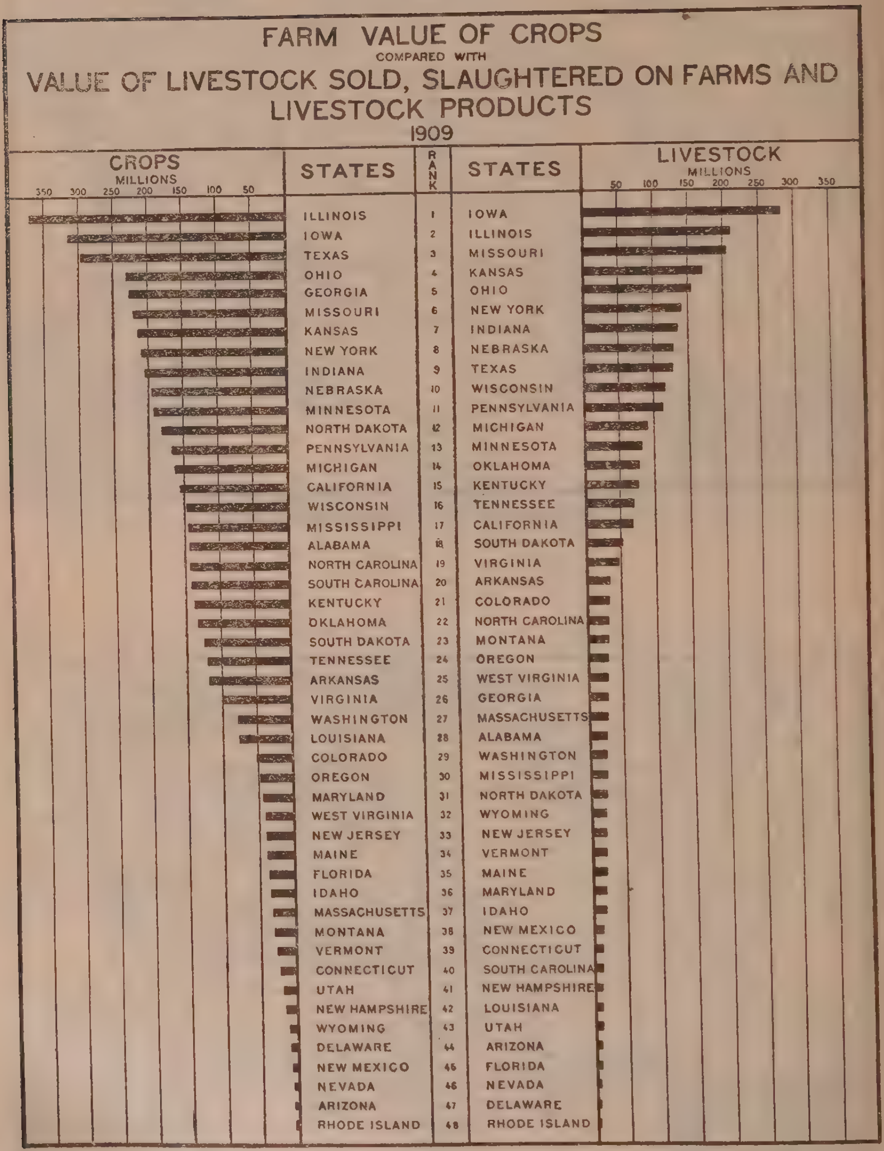
BUSH FRUITS, ACREAGE

STATE	CENSUS 1909	STATE	CENSUS 1909
N.Y.....	15,837	Cal.....	5,049
Mich....	13,166	Pa......	4,538
Mo......	7,953	Iowa....	4,294
Ohio....	6,882	Kans....	3,681
N. J.....	6,355	Ind.....	3,341
Ill......	6,303	Tex.....	2,892

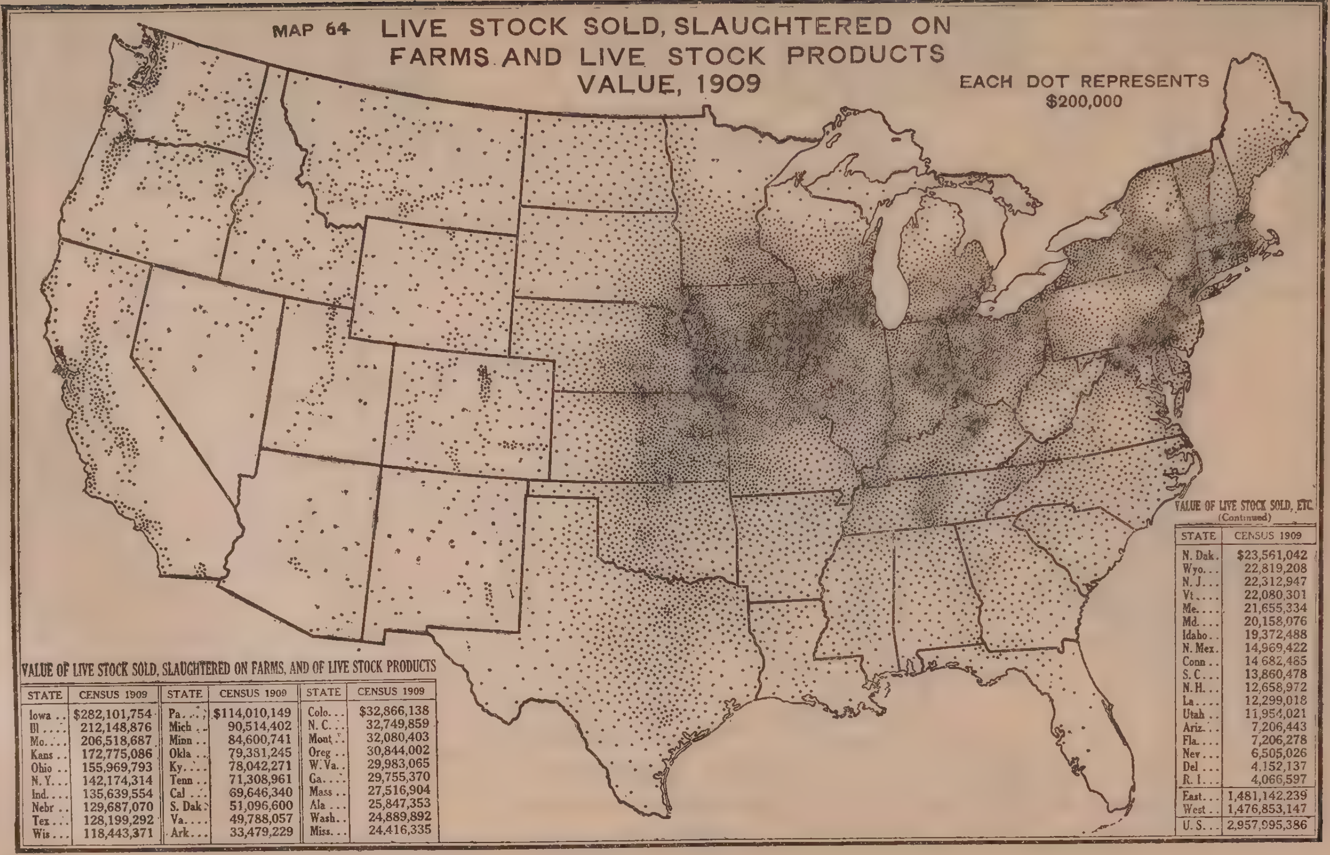
BUSH FRUITS
(Continued)

STATE	CENSUS 1909
Ky	2,834
Md.....	2,303
Wash ...	2,220
W. Va. ..	2,204
Oreg....	2,167
Okla....	1,920
Minn. ...	1,804
Other ...	15,241
East	73,313
West ...	37,671
U.S.	110,984

Compare with map of strawberries (map 62).



GRAPH 4.—A large proportion of the crops is fed to live stock.



MAP 64 LIVE STOCK SOLD, SLAUGHTERED ON FARMS AND LIVE STOCK PRODUCTS VALUE, 1909

EACH DOT REPRESENTS $200,000

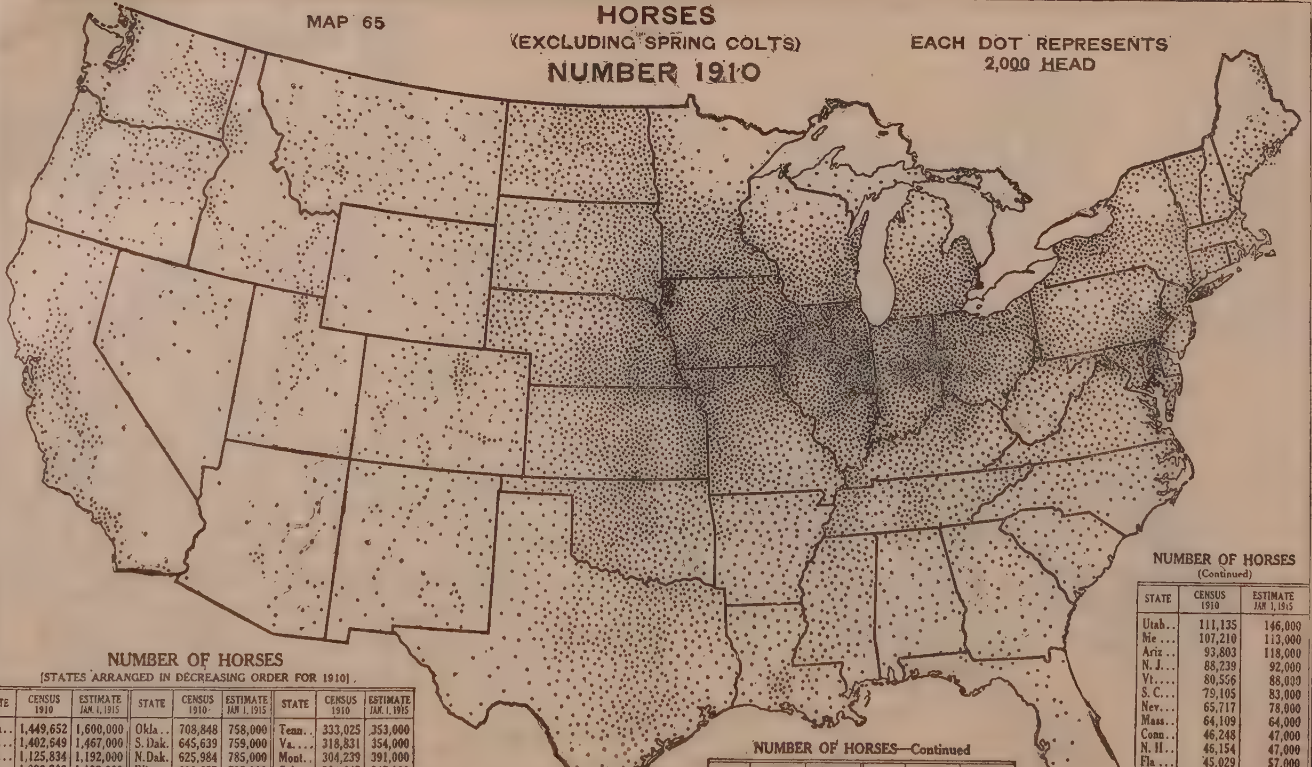
VALUE OF LIVE STOCK SOLD, SLAUGHTERED ON FARMS, AND OF LIVE STOCK PRODUCTS

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Iowa . .	$282,101,754	Pa. . . .	$114,010,149	Colo. . .	$32,866,138
Ill	212,148,876	Mich . .	90,514,402	N. C. . .	32,749,859
Mo. . . .	206,518,687	Minn . .	84,600,741	Mont . .	32,080,403
Kans . .	172,775,086	Okla . .	79,331,245	Oreg . .	30,844,002
Ohio . .	155,969,793	Ky. . . .	78,042,271	W. Va. .	29,983,065
N. Y. . .	142,174,314	Tenn . .	71,308,961	Ga. . . .	29,755,370
Ind. . . .	135,639,554	Cal . . .	69,646,340	Mass . .	27,516,904
Nebr . .	129,687,070	S. Dak .	51,096,600	Ala . . .	25,847,353
Tex . . .	128,199,292	Va. . . .	49,788,057	Wash. .	24,889,892
Wis . . .	118,443,371	Ark . . .	33,479,229	Miss. . .	24,416,335

VALUE OF LIVE STOCK SOLD, ETC.
(Continued)

STATE	CENSUS 1909
N. Dak.	$23,561,042
Wyo. . .	22,819,208
N. J. . .	22,312,947
Vt	22,080,301
Me. . . .	21,655,334
Md. . . .	20,158,076
Idaho . .	19,372,488
N. Mex.	14,969,422
Conn . .	14,682,485
S. C. . .	13,860,478
N. H. . .	12,658,972
La	12,299,018
Utah . .	11,954,021
Ariz. . .	7,206,443
Fla. . . .	7,206,278
Nev . . .	6,505,026
Del . . .	4,152,137
R. I. . .	4,066,597
East. . .	1,481,142,239
West . .	1,476,853,147
U. S. . .	2,957,995,386

Compare with maps of value of all crops (map 6) and receipts from sale of dairy products (map 70).



NUMBER OF HORSES

[STATES ARRANGED IN DECREASING ORDER FOR 1910].

STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915
Iowa..	1,449,652	1,600,000	Okla..	708,848	758,000	Tenn..	333,025	353,000
Ill....	1,402,649	1,467,000	S. Dak.	645,639	759,000	Va....	318,831	354,000
Tex...	1,125,834	1,192,000	N. Dak.	625,984	785,000	Mont..	304,239	391,000
Kans..	1,099,738	1,132,000	Wis...	608,657	705,000	Colo..	284,647	347,000
Mo...	1,035,884	1,095,000	Mich..	602,410	673,000	Wash.	269,501	311,000
Nebr..	971,279	1,038,000	N. Y...	587,393	615,000	Oreg..	261,627	304,000
Ohio..	888,027	910,000	Pa....	542,793	596,000	Ark...	245 861	276,000
Ind..,	785,954	854,000	Cal...	445,849	503,000	Miss..	210,937	241,000
Minn..	738,578	872,000	Ky....	425,884	443,000	Idaho.	189,322	243,000

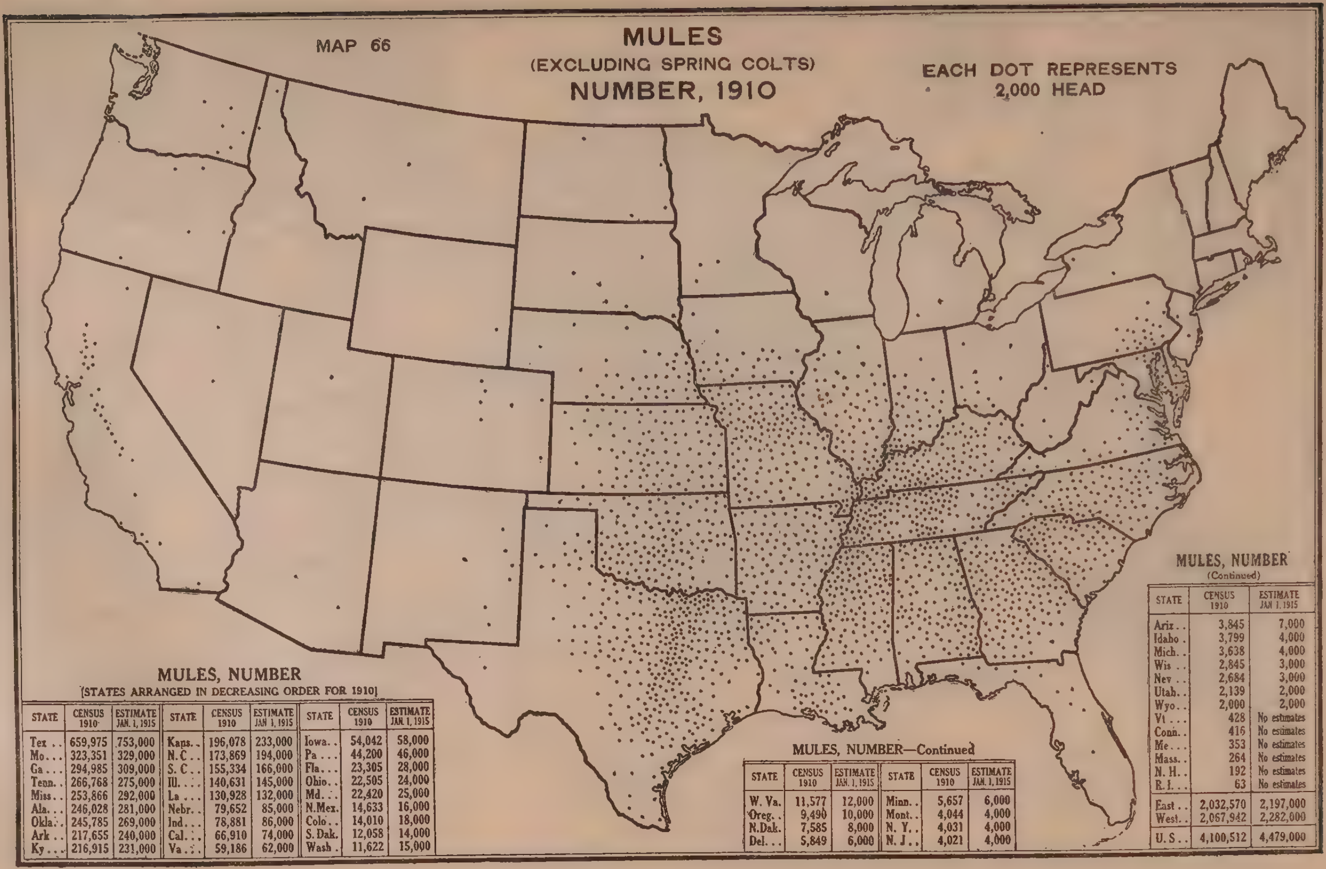
NUMBER OF HORSES—Continued

STATE	CENSUS 1910	ESTIMATE JAN 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915
W. Va.	176,530	192,000	Wyo..	150,984	176,000
La....	175,814	191,000	Md...	150,159	167,000
N. Mex.	175,057	217,000	Ala...	132,611	149,000
N. C...	162,783	182,000	Ga...	118,583	125,000

NUMBER OF HORSES
(Continued)

STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
Utah..	111,135	146,000
Me...	107,210	113,000
Ariz..	93,803	118,000
N. J...	88,239	92,000
Vt....	80,556	88,000
S. C...	79,105	83,000
Nev...	65,717	78,000
Mass..	64,109	64,000
Conn..	46,248	47,000
N. H..	46,154	47,000
Fla...	45,029	57,000
Del...	31,943	36,000
R. I...	9,527	10,000
East..	8,045,346	8,663,000
West..	11,174,992	12,532,000
U. S...	19,220,338	21,195,000

Compare with map of land in crops (map 5).



MAP 66

MULES
(EXCLUDING SPRING COLTS)
NUMBER, 1910

EACH DOT REPRESENTS
2,000 HEAD

MULES, NUMBER
[STATES ARRANGED IN DECREASING ORDER FOR 1910]

STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
Tex . .	659,975	753,000	Kans. .	196,078	233,000	Iowa. .	54,042	58,000
Mo. . .	323,351	329,000	N. C . .	173,869	194,000	Pa . . .	44,200	46,000
Ga . . .	294,985	309,000	S. C . .	155,334	166,000	Fla. . .	23,305	28,000
Tenn. .	266,768	275,000	Ill. . . .	140,631	145,000	Ohio. .	22,505	24,000
Miss. .	253,866	292,000	La . . .	130,928	132,000	Md. . .	22,420	25,000
Ala. . .	246,028	281,000	Nebr. .	79,652	85,000	N.Mex.	14,633	16,000
Okla. .	245,785	269,000	Ind. . .	78,881	86,000	Colo . .	14,010	18,000
Ark . .	217,655	240,000	Cal. . .	66,910	74,000	S. Dak.	12,058	14,000
Ky . . .	216,915	231,000	Va . . .	59,186	62,000	Wash .	11,622	15,000

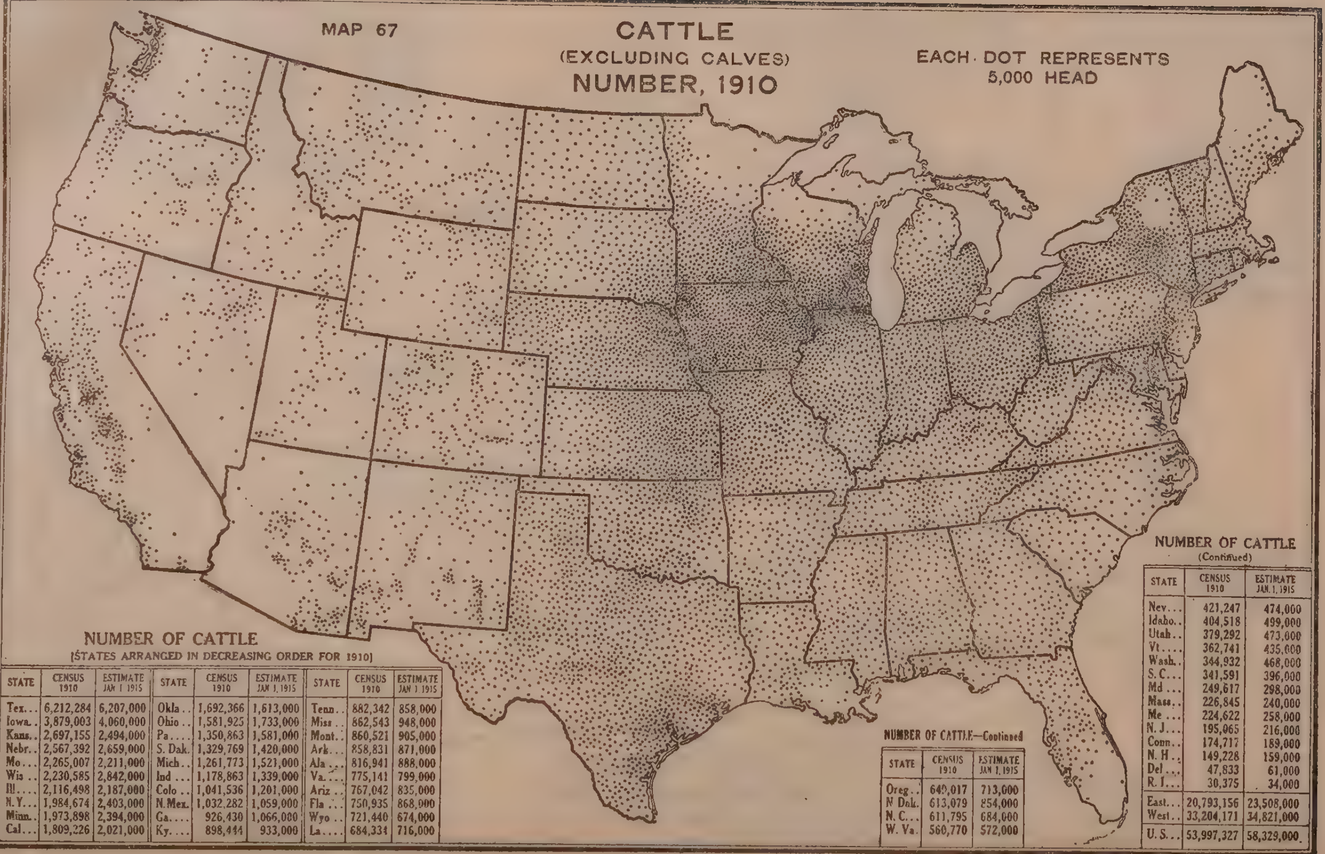
MULES, NUMBER—Continued

STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915
W. Va.	11,577	12,000	Minn. .	5,657	6,000
Oreg. .	9,490	10,000	Mont. .	4,044	4,000
N.Dak.	7,585	8,000	N. Y. .	4,031	4,000
Del. . .	5,849	6,000	N. J . .	4,021	4,000

MULES, NUMBER
(Continued)

STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
Ariz . .	3,845	7,000
Idaho .	3,799	4,000
Mich. .	3,638	4,000
Wis . .	2,845	3,000
Nev . .	2,684	3,000
Utah. .	2,139	2,000
Wyo. .	2,000	2,000
Vt . . .	428	No estimates
Conn. .	416	No estimates
Me . . .	353	No estimates
Mass. .	264	No estimates
N. H. .	192	No estimates
R. I. . .	63	No estimates
East . .	2,032,570	2,197,000
West. .	2,067,942	2,282,000
U. S . .	4,100,512	4,479,000

Compare with maps of horses (map 65) and cotton (map 15).



NUMBER OF CATTLE
[STATES ARRANGED IN DECREASING ORDER FOR 1910]

STATE	CENSUS 1910	ESTIMATE JAN 1 1915	STATE	CENSUS 1910	ESTIMATE JAN 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
Tex...	6,212,284	6,207,000	Okla..	1,692,366	1,613,000	Tenn..	882,342	858,000
Iowa..	3,879,003	4,060,000	Ohio..	1,581,925	1,733,000	Miss..	862,543	948,000
Kans..	2,697,155	2,494,000	Pa....	1,350,863	1,581,000	Mont..	860,521	905,000
Nebr..	2,567,392	2,659,000	S. Dak.	1,329,769	1,420,000	Ark...	858,831	871,000
Mo...	2,265,007	2,211,000	Mich..	1,261,773	1,521,000	Ala...	816,941	888,000
Wis..	2,230,585	2,842,000	Ind...	1,178,863	1,339,000	Va....	775,141	799,000
Ill....	2,116,498	2,187,000	Colo..	1,041,536	1,201,000	Ariz..	767,042	835,000
N.Y...	1,984,674	2,403,000	N.Mex.	1,032,282	1,059,000	Fla...	750,935	868,000
Minn..	1,973,898	2,394,000	Ga....	926,430	1,066,000	Wyo..	721,440	674,000
Cal...	1,809,226	2,021,000	Ky....	898,444	933,000	La....	684,334	716,000

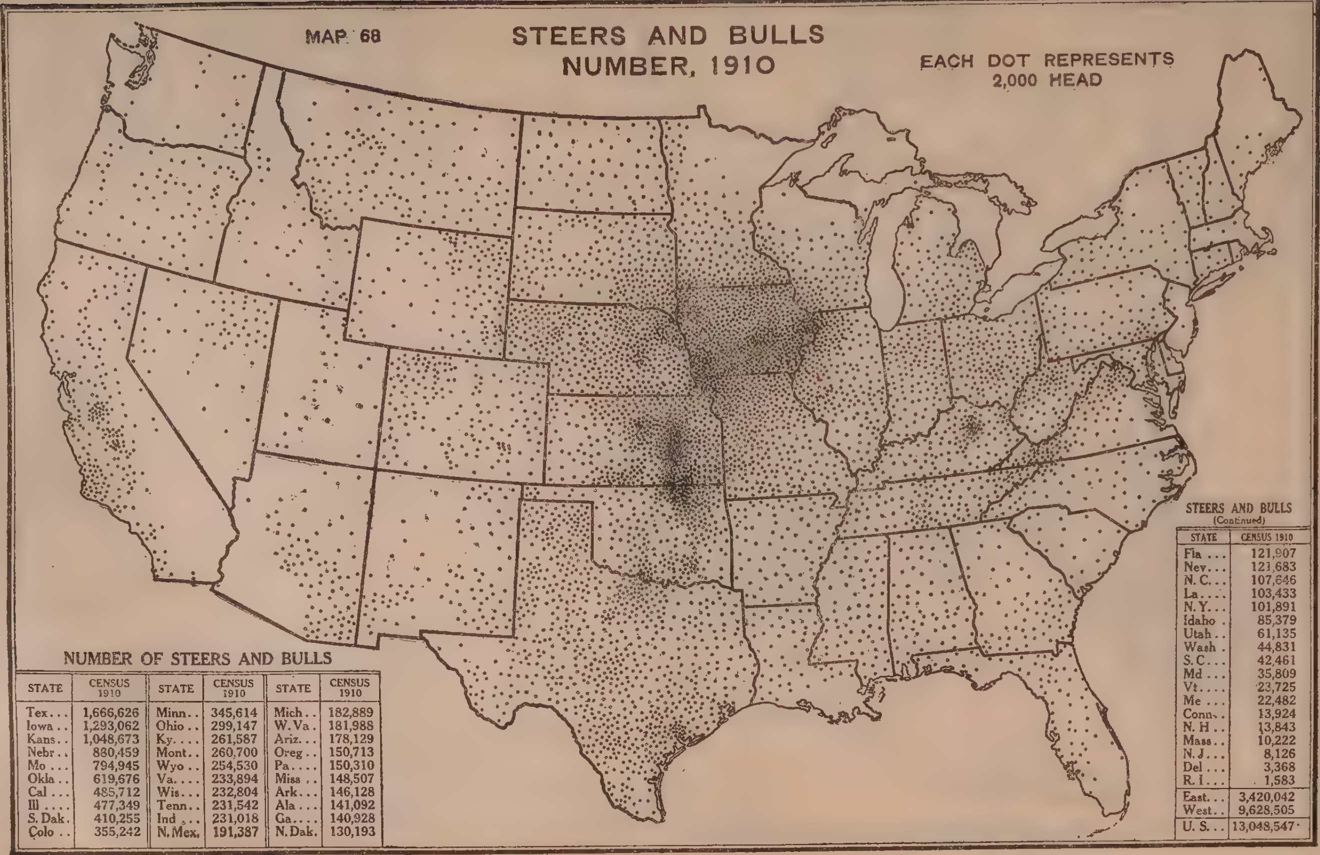
NUMBER OF CATTLE—Continued

STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
Oreg..	649,017	713,000
N Dak.	613,079	854,000
N. C...	611,795	684,000
W. Va.	560,770	572,000

NUMBER OF CATTLE
(Continued)

STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915
Nev...	421,247	474,000
Idaho..	404,518	499,000
Utah..	379,292	473,000
Vt....	362,741	435,000
Wash..	344,932	468,000
S. C...	341,591	396,000
Md...	249,617	298,000
Mass..	226,845	240,000
Me...	224,622	258,000
N. J...	195,065	216,000
Conn..	174,717	189,000
N. H..	149,228	159,000
Del...	47,833	61,000
R. I...	30,375	34,000
East...	20,793,156	23,508,000
West..	33,204,171	34,821,000
U. S...	53,997,327	58,329,000

Compare with maps of corn (map 13), hay and forage (map 26), and improved land not in crops, mostly pasture (map 25).



MAP 68

STEERS AND BULLS
NUMBER, 1910

EACH DOT REPRESENTS
2,000 HEAD

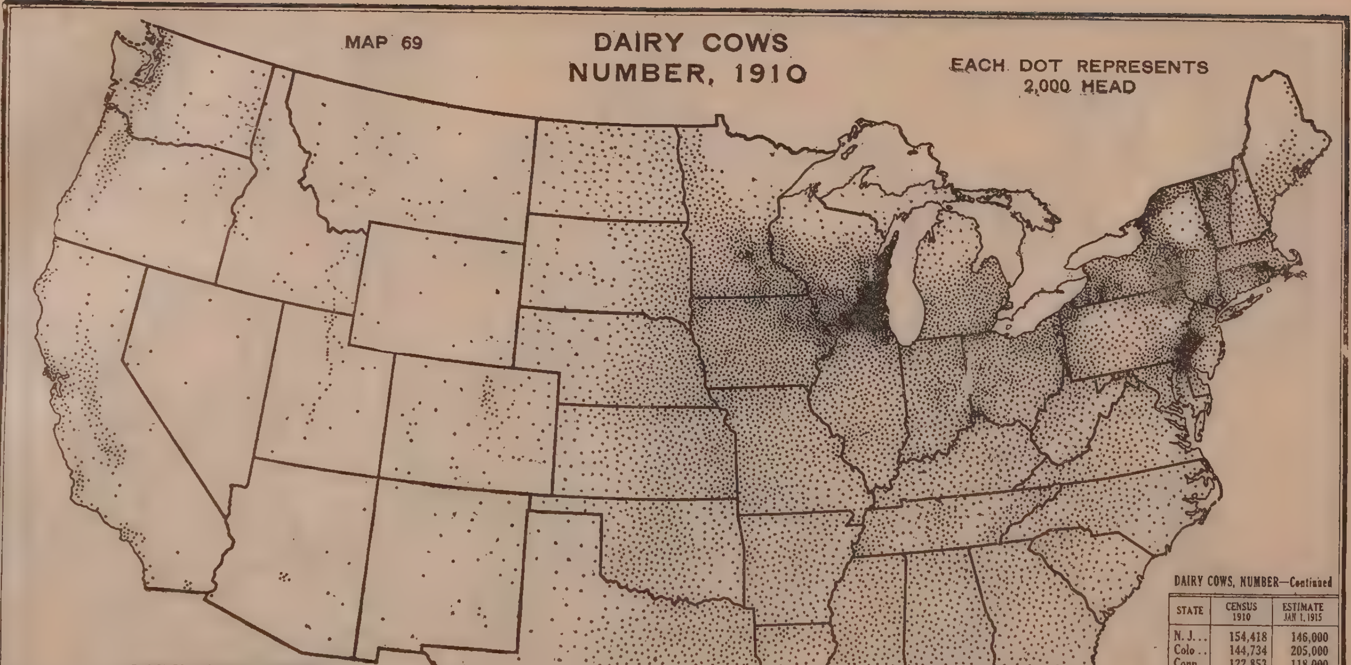
NUMBER OF STEERS AND BULLS

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Tex. . .	1,666,626	Minn. .	345,614	Mich. .	182,889
Iowa . .	1,293,062	Ohio . .	299,147	W. Va.	181,988
Kans. .	1,048,673	Ky. . . .	261,587	Ariz. . .	178,129
Nebr. .	880,459	Mont. .	260,700	Oreg . .	150,713
Mo . . .	794,945	Wyo . .	254,530	Pa. . . .	150,310
Okla . .	619,676	Va. . . .	233,894	Miss . .	148,507
Cal . . .	485,712	Wis. . .	232,804	Ark. . .	146,128
Ill	477,349	Tenn. .	231,542	Ala . . .	141,092
S. Dak.	410,255	Ind . . .	231,018	Ga. . . .	140,928
Colo . .	355,242	N. Mex.	191,387	N. Dak.	130,193

STEERS AND BULLS
(Continued)

STATE	CENSUS 1910
Fla . . .	121,907
Nev. . .	121,683
N. C. . .	107,646
La. . . .	103,433
N. Y. . .	101,891
Idaho .	85,379
Utah . .	61,135
Wash .	44,831
S. C. . .	42,461
Md . . .	35,809
Vt. . . .	23,725
Me . . .	22,482
Conn. .	13,924
N. H . .	13,843
Mass . .	10,222
N. J . . .	8,126
Del . . .	3,368
R. I . . .	1,583
East. . .	3,420,042
West. .	9,628,505
U. S. . .	13,048,547

Compare with map of dairy cows (map 69).



MAP 69

DAIRY COWS
NUMBER, 1910

EACH DOT REPRESENTS
2,000 HEAD

DAIRY COWS, NUMBER

STATE	CENSUS 1910	ESTIMATE JAN 1 1915	STATE	CENSUS 1910	ESTIMATE JAN 1, 1915	STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
N.Y...	1,509,594	1,509,000	Kans..	736,107	726,000	Ala...	391,536	384,000
Wis...	1,473,505	1,626,000	Ind....	633,591	646,000	S. Dak.	369,764	453,000
Iowa..	1,406,792	1,377,000	Nebr..	613,952	625,000	Va....	356,284	349,000
Minn..	1,085,388	1,186,000	Okla..	530,796	494,000	N.C...	308,914	315,000
Ill....	1,050,223	1,007,000	Cal...	467,332	541,000	La....	279,097	268,000
Tex...	1,013,867	1,086,000	Miss..	429,587	434,000	Vt....	265,483	268,000
Pa....	933,640	943,000	Ark...	425,793	387,000	N.Dak.	259,173	339,000
Ohio..	905,125	895,000	Ky....	409,834	390,000	W. Va.	239,539	234,000
Mo...	856,430	797,000	Ga....	405,710	406,000	Wash.	186,233	253,000
Mich..	767,083	814,000	Tenn..	397,104	355,000	S. C...	180,842	185,000

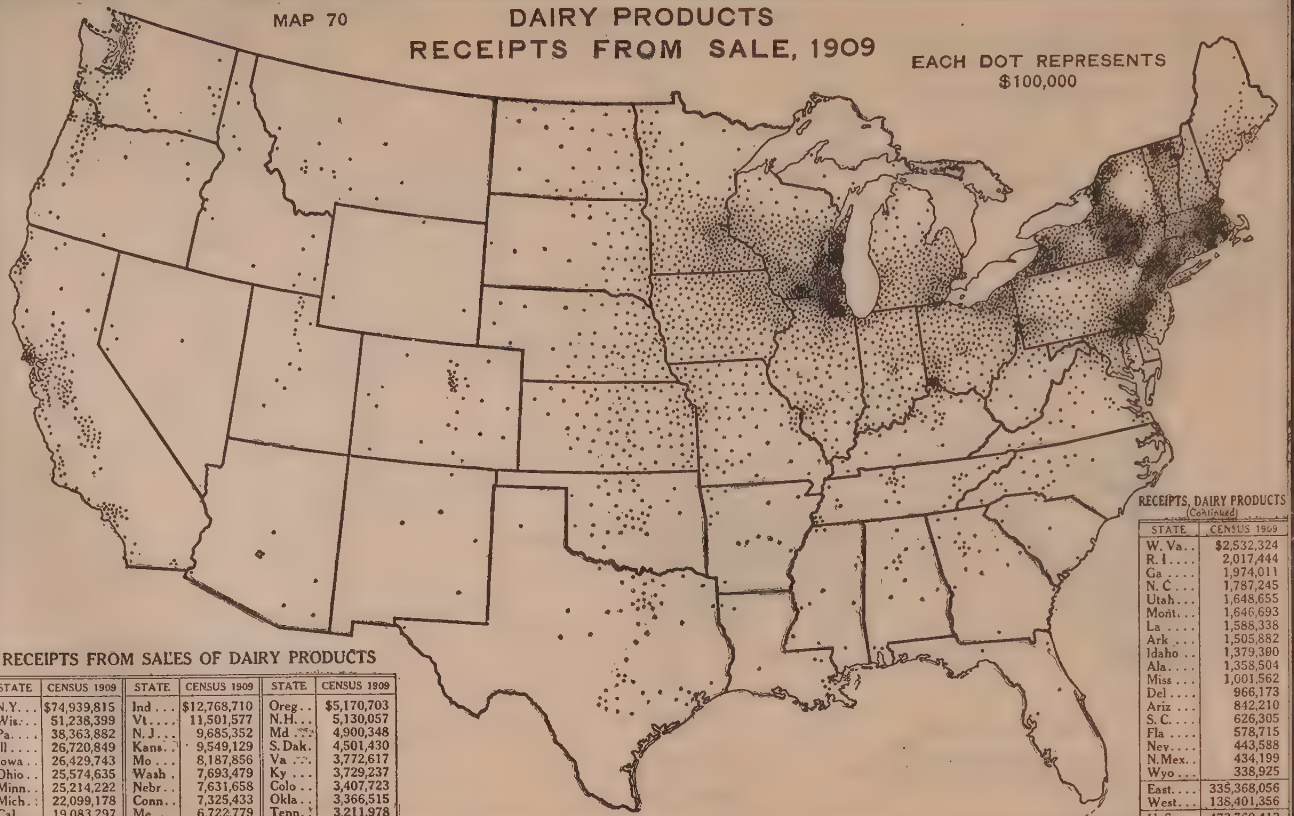
DAIRY COWS, NUMBER—Contd.

STATE	CENSUS 1910	ESTIMATE JAN. 1, 1915
Oreg..	172,550	210,000
Mass..	171,936	157,000
Md...	167,716	177,000
Me....	156,819	157,000

DAIRY COWS, NUMBER—Continued

STATE	CENSUS 1910	ESTIMATE JAN 1, 1915
N. J...	154,418	146,000
Colo..	144,734	205,000
Conn..	122,853	118,000
Fla...	116,041	133,000
N. H..	101,278	95,000
Idaho.	86,299	120,000
Mont..	77,527	114,000
Utah..	75,810	92,000
N.Mex.	51,451	68,000
Del...	35,708	41,000
Wyo..	32,699	46,000
Ariz..	28,862	44,000
R. I...	23,329	23,000
Nev...	17,084	24,000
East..	11,707,690	11,807,000
West..	8,917,740	9,455,000
U.S...	20,625,432	21,262,000

Compare with map of hay and forage (map 26).



MAP 70

DAIRY PRODUCTS
RECEIPTS FROM SALE, 1909

EACH DOT REPRESENTS
$100,000

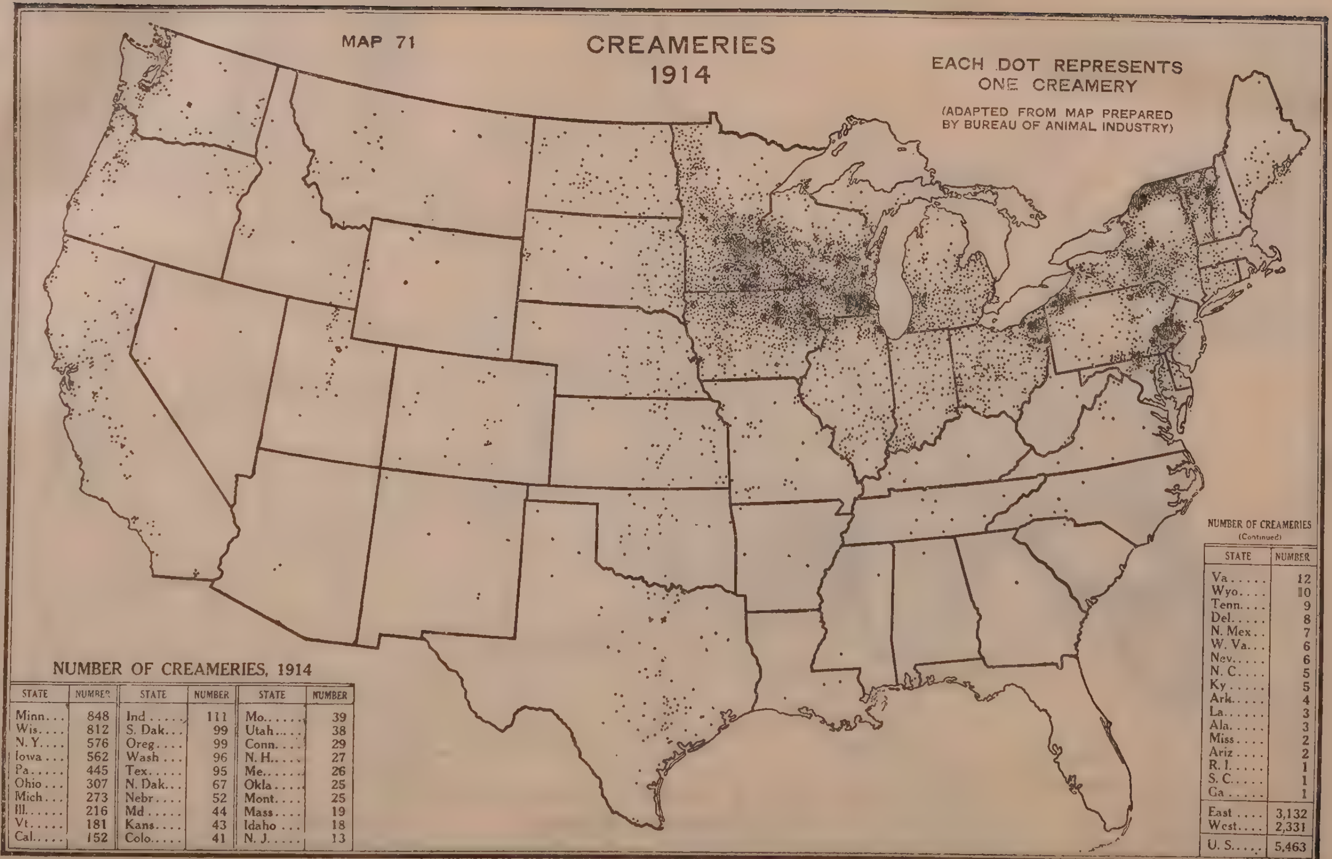
RECEIPTS FROM SALES OF DAIRY PRODUCTS

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
N.Y. . . .	$74,939,815	Ind . . .	$12,768,710	Oreg . .	$5,170,703
Wis. . .	51,238,399	Vt. . . .	11,501,577	N.H. . .	5,130,057
Pa. . . .	38,363,882	N.J. . .	9,685,352	Md . . .	4,900,348
Ill	26,720,849	Kans. .	9,549,129	S. Dak.	4,501,430
Iowa . .	26,429,743	Mo . . .	8,187,856	Va . . .	3,772,617
Ohio . .	25,574,635	Wash .	7,693,479	Ky . . .	3,729,237
Minn. .	25,214,222	Nebr . .	7,631,658	Colo . .	3,407,723
Mich. .	22,099,178	Conn. .	7,325,433	Okla . .	3,366,515
Cal . . .	19,083,297	Me . . .	6,722,779	Tenn. .	3,211,978
Mass . .	14,840,927	Tex. . .	5,461,423	N. Dak.	2,876,298

RECEIPTS, DAIRY PRODUCTS
(Continued)

STATE	CENSUS 1909
W. Va. .	$2,532,324
R. I. . . .	2,017,444
Ga	1,974,011
N. C . . .	1,787,245
Utah . . .	1,648,655
Mont. . .	1,646,693
La	1,588,338
Ark . . .	1,505,882
Idaho . .	1,379,380
Ala. . . .	1,358,504
Miss . . .	1,001,562
Del	966,173
Ariz . . .	842,210
S. C. . . .	626,305
Fla	578,715
Nev. . . .	443,588
N. Mex. .	434,199
Wyo . . .	338,925
East. . . .	335,368,056
West. . .	138,401,356
U. S. . . .	473,769,412

Compare with map of dairy cows (map 69).



MAP 71

CREAMERIES 1914

EACH DOT REPRESENTS ONE CREAMERY

(ADAPTED FROM MAP PREPARED BY BUREAU OF ANIMAL INDUSTRY)

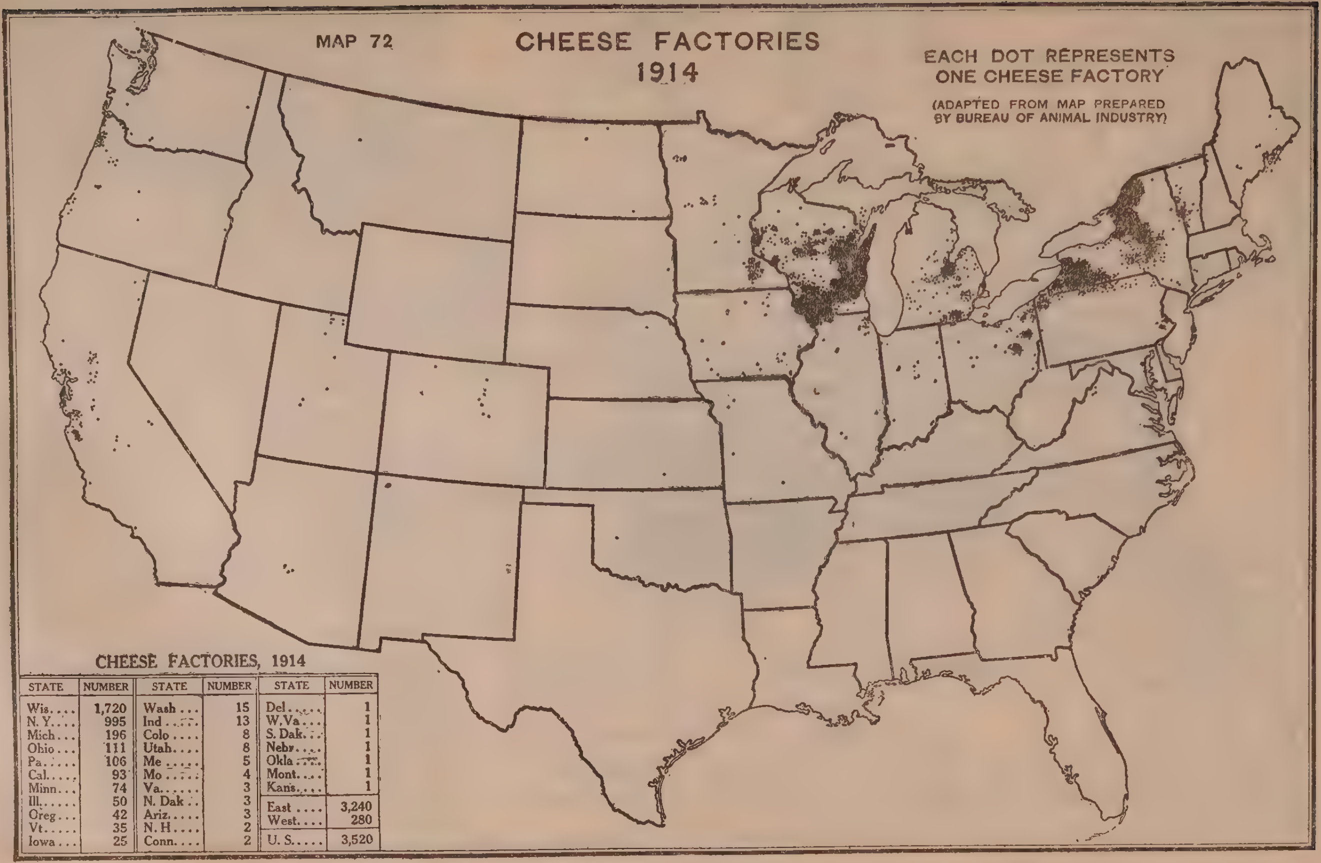
NUMBER OF CREAMERIES, 1914

STATE	NUMBER	STATE	NUMBER	STATE	NUMBER
Minn.	848	Ind.	111	Mo.	39
Wis.	812	S. Dak.	99	Utah	38
N. Y.	576	Oreg.	99	Conn.	29
Iowa	562	Wash.	96	N. H.	27
Pa.	445	Tex.	95	Me.	26
Ohio	307	N. Dak.	67	Okla.	25
Mich.	273	Nebr.	52	Mont.	25
Ill.	216	Md.	44	Mass.	19
Vt.	181	Kans.	43	Idaho	18
Cal.	152	Colo.	41	N. J.	13

NUMBER OF CREAMERIES (Continued)

STATE	NUMBER
Va.	12
Wyo.	10
Tenn.	9
Del.	8
N. Mex.	7
W. Va.	6
Nev.	6
N. C.	5
Ky.	5
Ark.	4
La.	3
Ala.	3
Miss.	2
Ariz.	2
R. I.	1
S. C.	1
Ga.	1
East	3,132
West	2,331
U. S.	5,463

Compare with map of receipts from sale of dairy products (map 70).



MAP 72

CHEESE FACTORIES
1914

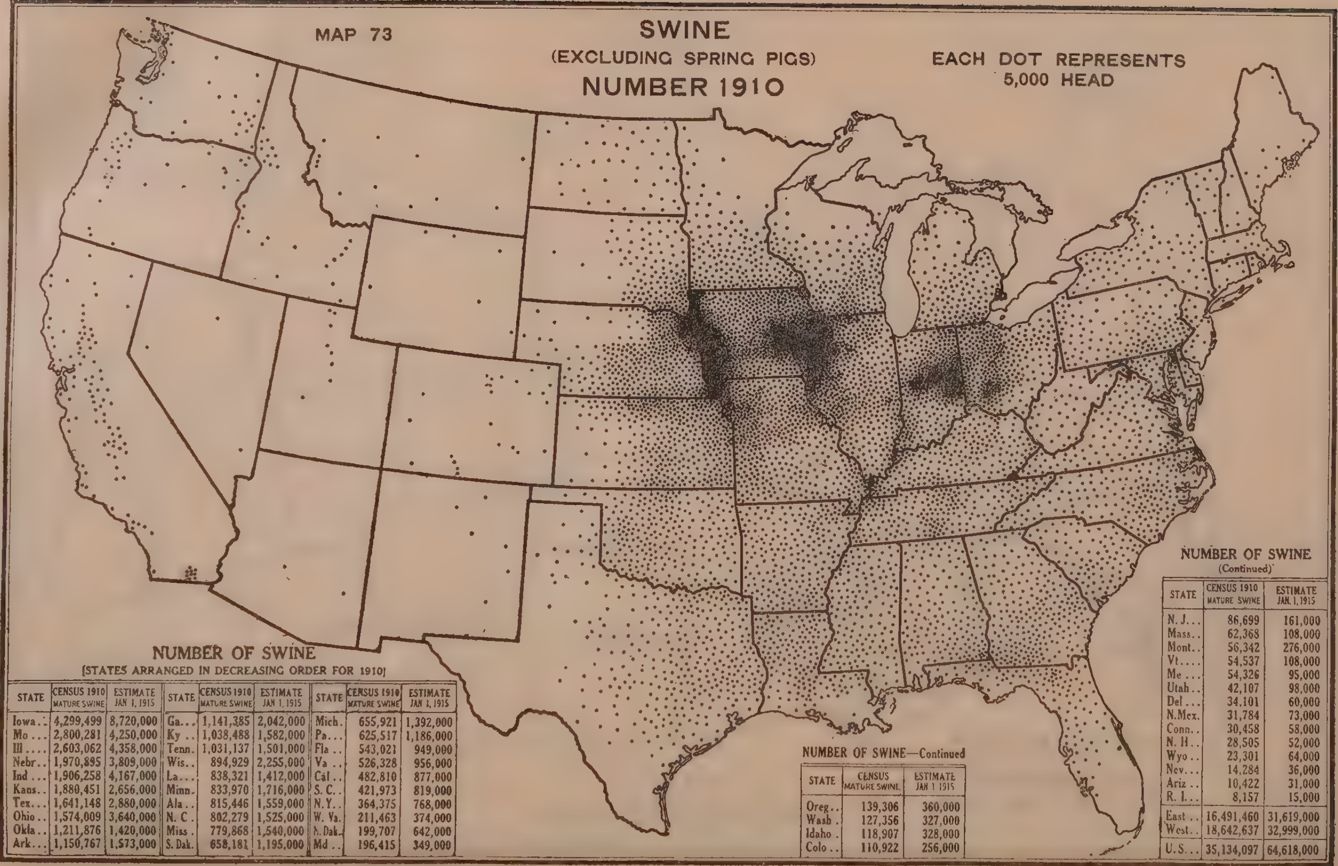
EACH DOT REPRESENTS
ONE CHEESE FACTORY

(ADAPTED FROM MAP PREPARED
BY BUREAU OF ANIMAL INDUSTRY)

CHEESE FACTORIES, 1914

STATE	NUMBER	STATE	NUMBER	STATE	NUMBER
Wis.	1,720	Wash	15	Del.	1
N. Y.	995	Ind	13	W. Va.	1
Mich.	196	Colo	8	S. Dak.	1
Ohio	111	Utah	8	Nebr.	1
Pa.	106	Me	5	Okla	1
Cal.	93	Mo	4	Mont.	1
Minn.	74	Va.	3	Kans.	1
Ill.	50	N. Dak	3	East	3,240
Oreg	42	Ariz.	3	West	280
Vt.	35	N. H.	2		
Iowa	25	Conn.	2	U. S.	3,520

Compare with map of creameries (map 71).



MAP 73

SWINE
(EXCLUDING SPRING PIGS)
NUMBER 1910

EACH DOT REPRESENTS
5,000 HEAD

NUMBER OF SWINE
[STATES ARRANGED IN DECREASING ORDER FOR 1910]

STATE	CENSUS 1910 MATURE SWINE	ESTIMATE JAN 1, 1915	STATE	CENSUS 1910 MATURE SWINE	ESTIMATE JAN 1, 1915	STATE	CENSUS 1910 MATURE SWINE	ESTIMATE JAN 1, 1915
Iowa..	4,299,499	8,720,000	Ga...	1,141,385	2,042,000	Mich.	655,921	1,392,000
Mo....	2,800,281	4,250,000	Ky ..	1,038,488	1,582,000	Pa...	625,517	1,186,000
Ill.....	2,603,062	4,358,000	Tenn.	1,031,137	1,501,000	Fla ..	543,021	949,000
Nebr..	1,970,895	3,809,000	Wis..	894,929	2,255,000	Va ..	526,328	956,000
Ind....	1,906,258	4,167,000	La...	838,321	1,412,000	Cal ..	482,810	877,000
Kans..	1,880,451	2,656,000	Minn.	833,970	1,716,000	S. C..	421,973	819,000
Tex...	1,641,148	2,880,000	Ala..	815,446	1,559,000	N. Y..	364,375	768,000
Ohio..	1,574,009	3,640,000	N. C.	802,279	1,525,000	W. Va.	211,463	374,000
Okla..	1,211,876	1,420,000	Miss.	779,868	1,540,000	N. Dak.	199,707	642,000
Ark...	1,150,767	1,573,000	S. Dak.	658,181	1,195,000	Md ..	196,415	349,000

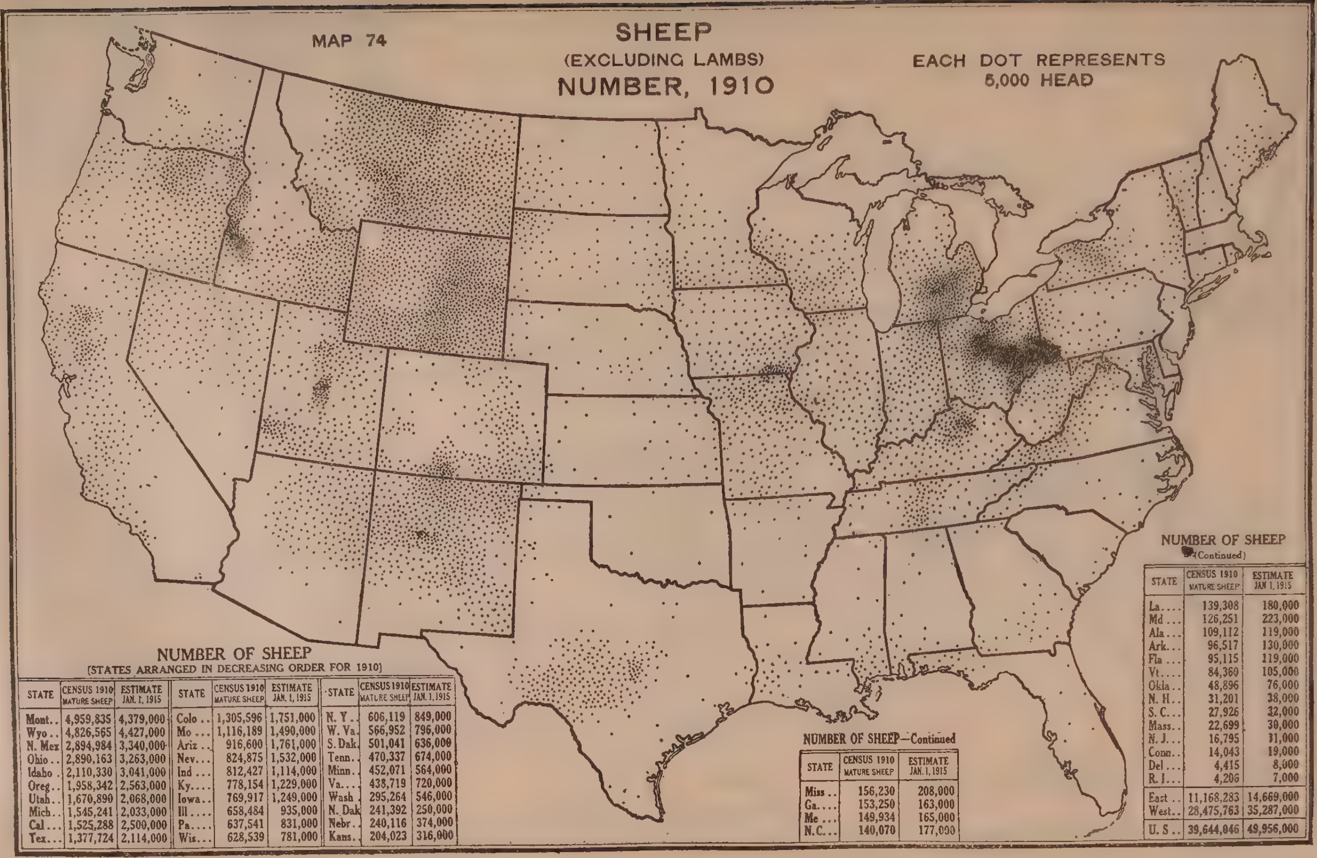
NUMBER OF SWINE—Continued

STATE	CENSUS MATURE SWINE	ESTIMATE JAN 1 1915
Oreg..	139,306	360,000
Wash.	127,356	327,000
Idaho.	118,907	328,000
Colo..	110,922	256,000

NUMBER OF SWINE
(Continued)

STATE	CENSUS 1910 MATURE SWINE	ESTIMATE JAN. 1, 1915
N. J...	86,699	161,000
Mass..	62,368	108,000
Mont..	56,342	276,000
Vt.....	54,537	108,000
Me....	54,326	95,000
Utah..	42,107	98,000
Del....	34,101	60,000
N.Mex.	31,784	73,000
Conn..	30,458	58,000
N. H..	28,505	52,000
Wyo..	23,301	64,000
Nev...	14,284	36,000
Ariz..	10,422	31,000
R. I...	8,157	15,000
East..	16,491,460	31,619,000
West..	18,642,637	32,999,000
U. S...	35,134,097	64,618,000

Compare with map of corn (map 14).



MAP 74

SHEEP
(EXCLUDING LAMBS)
NUMBER, 1910

EACH DOT REPRESENTS
5,000 HEAD

NUMBER OF SHEEP
[STATES ARRANGED IN DECREASING ORDER FOR 1910]

STATE	CENSUS 1910 MATURE SHEEP	ESTIMATE JAN. 1, 1915	STATE	CENSUS 1910 MATURE SHEEP	ESTIMATE JAN. 1, 1915	STATE	CENSUS 1910 MATURE SHEEP	ESTIMATE JAN. 1, 1915
Mont..	4,959,835	4,379,000	Colo ..	1,305,596	1,751,000	N. Y. .	606,119	849,000
Wyo ..	4,826,565	4,427,000	Mo ...	1,116,189	1,490,000	W. Va.	566,952	796,000
N. Mex	2,894,984	3,340,000	Ariz ..	916,600	1,761,000	S. Dak.	501,041	636,000
Ohio ..	2,890,163	3,263,000	Nev...	824,875	1,532,000	Tenn. .	470,337	674,000
Idaho .	2,110,330	3,041,000	Ind ...	812,427	1,114,000	Minn. .	452,071	564,000
Oreg..	1,958,342	2,563,000	Ky....	778,154	1,229,000	Va....	438,719	720,000
Utah..	1,670,890	2,068,000	Iowa..	769,917	1,249,000	Wash .	295,264	546,000
Mich..	1,545,241	2,033,000	Ill	658,484	935,000	N. Dak	241,392	250,000
Cal ...	1,525,288	2,500,000	Pa....	637,541	831,000	Nebr. .	240,116	374,000
Tex...	1,377,724	2,114,000	Wis...	628,539	781,000	Kans. .	204,023	316,000

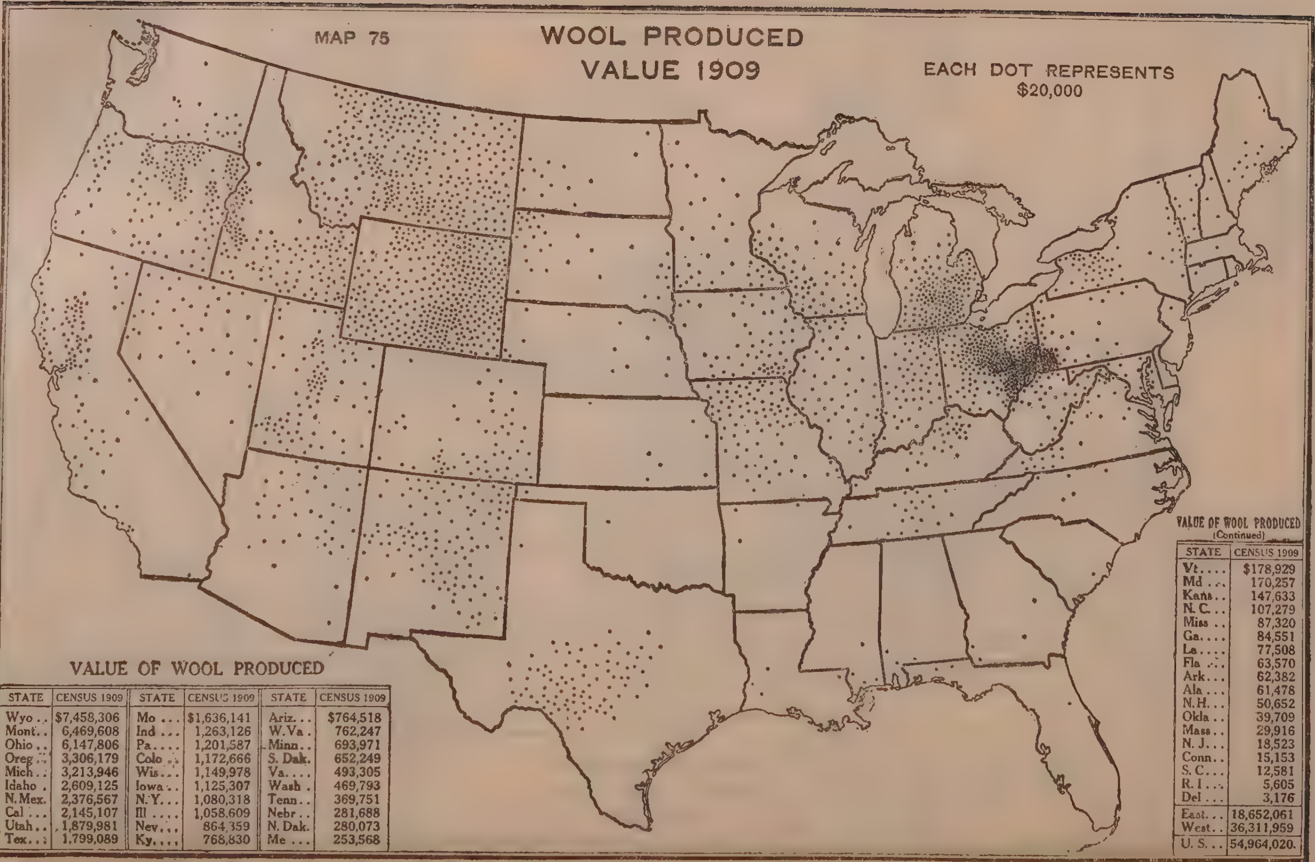
NUMBER OF SHEEP—Continued

STATE	CENSUS 1910 MATURE SHEEP	ESTIMATE JAN. 1, 1915
Miss ..	156,230	208,000
Ga....	153,250	163,000
Me ...	149,934	165,000
N.C...	140,070	177,000

NUMBER OF SHEEP
(Continued)

STATE	CENSUS 1910 MATURE SHEEP	ESTIMATE JAN 1, 1915
La....	139,308	180,000
Md ...	126,251	223,000
Ala ...	109,112	119,000
Ark...	96,517	130,000
Fla ...	95,115	119,000
Vt....	84,360	105,000
Okla..	48,896	76,000
N. H..	31,201	38,000
S. C...	27,926	32,000
Mass..	22,699	30,000
N. J...	16,795	31,000
Conn..	14,043	19,000
Del ...	4,415	8,000
R. I...	4,206	7,000
East ..	11,168,283	14,669,000
West..	28,475,763	35,287,000
U. S ..	39,644,046	49,956,000

Compare with maps of swine (map 73) and total cattle (map 67).



VALUE OF WOOL PRODUCED

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Wyo . .	$7,458,306	Mo . . .	$1,636,141	Ariz. . .	$764,518
Mont. .	6,469,608	Ind . . .	1,263,126	W. Va .	762,247
Ohio . .	6,147,806	Pa. . . .	1,201,587	Minn. .	693,971
Oreg . .	3,306,179	Colo . .	1,172,666	S. Dak.	652,249
Mich . .	3,213,946	Wis. . .	1,149,978	Va. . . .	493,305
Idaho .	2,609,125	Iowa . .	1,125,307	Wash .	469,793
N. Mex.	2,376,567	N. Y. . .	1,080,318	Tenn. .	369,751
Cal . . .	2,145,107	Ill	1,058,609	Nebr . .	281,688
Utah . .	1,879,981	Nev. . .	864,359	N. Dak.	280,073
Tex. . .	1,799,089	Ky. . . .	768,830	Me . . .	253,568

VALUE OF WOOL PRODUCED
(Continued)

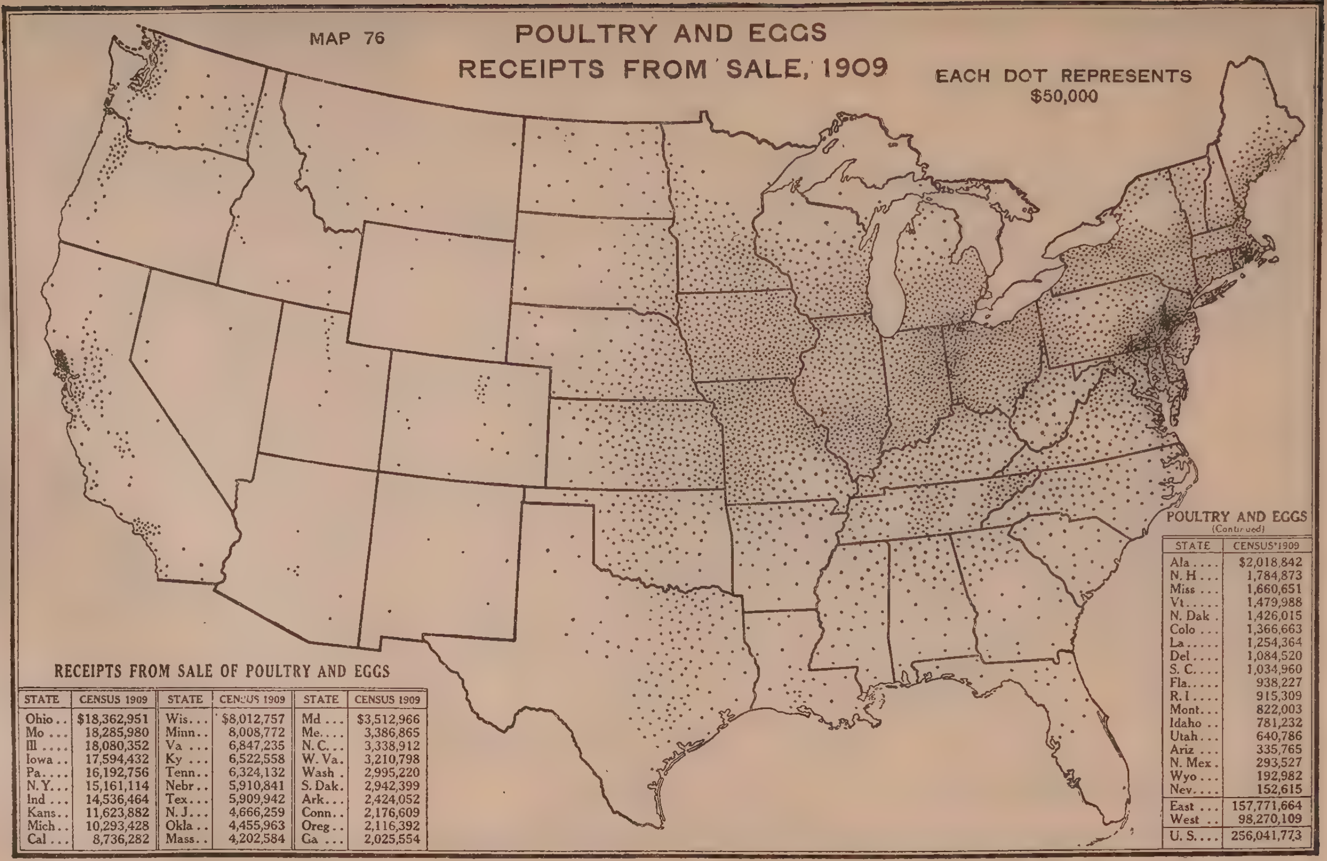
STATE	CENSUS 1909
Vt. . . .	$178,929
Md . . .	170,257
Kans. .	147,633
N. C. . .	107,279
Miss . .	87,320
Ga. . . .	84,551
La. . . .	77,508
Fla . . .	63,570
Ark. . .	62,382
Ala . . .	61,478
N. H. . .	50,652
Okla . .	39,709
Mass . .	29,916
N. J. . .	18,523
Conn. .	15,153
S. C. . .	12,581
R. I. . .	5,605
Del . . .	3,176
East. . .	18,652,061
West. .	36,311,959
U. S. . .	54,964,020.

Compare with map of sheep (map 74).

MAP 76

POULTRY AND EGGS
RECEIPTS FROM SALE, 1909

EACH DOT REPRESENTS $50,000



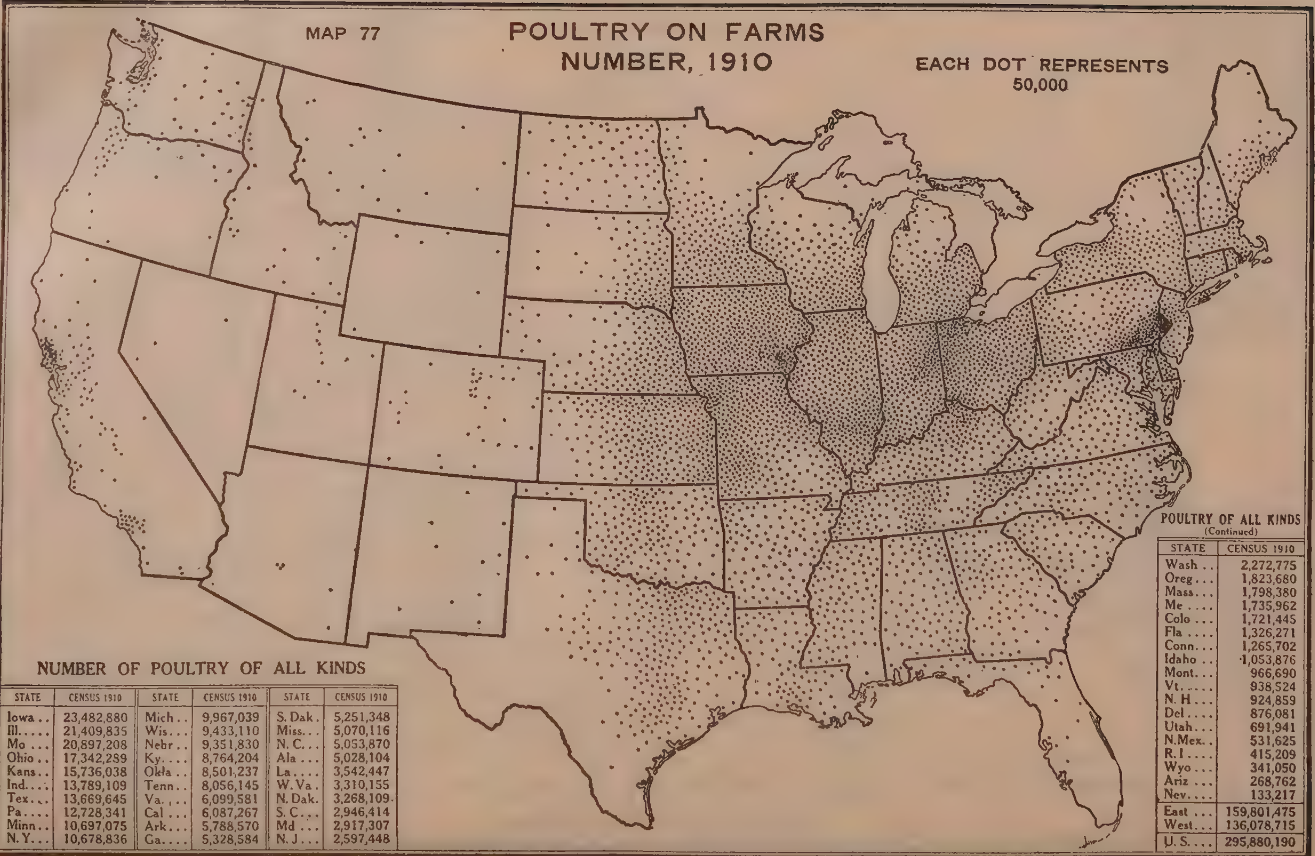
RECEIPTS FROM SALE OF POULTRY AND EGGS

STATE	CENSUS 1909	STATE	CENSUS 1909	STATE	CENSUS 1909
Ohio . .	$18,362,951	Wis. . .	$8,012,757	Md . . .	$3,512,966
Mo . . .	18,285,980	Minn. .	8,008,772	Me. . . .	3,386,865
Ill	18,080,352	Va . . .	6,847,235	N. C. . .	3,338,912
Iowa . .	17,594,432	Ky . . .	6,522,558	W. Va.	3,210,798
Pa. . . .	16,192,756	Tenn. .	6,324,132	Wash .	2,995,220
N. Y. . .	15,161,114	Nebr . .	5,910,841	S. Dak.	2,942,399
Ind . . .	14,536,464	Tex. . .	5,909,942	Ark. . .	2,424,052
Kans. .	11,623,882	N. J. . .	4,666,259	Conn. .	2,176,609
Mich. .	10,293,428	Okla . .	4,455,963	Oreg . .	2,116,392
Cal . . .	8,736,282	Mass. .	4,202,584	Ga . . .	2,025,554

POULTRY AND EGGS
(Continued)

STATE	CENSUS 1909
Ala	$2,018,842
N. H . . .	1,784,873
Miss . . .	1,660,651
Vt	1,479,988
N. Dak .	1,426,015
Colo . . .	1,366,663
La	1,254,364
Del	1,084,520
S. C. . . .	1,034,960
Fla.	938,227
R. I	915,309
Mont. . .	822,003
Idaho . .	781,232
Utah . . .	640,786
Ariz . . .	335,765
N. Mex .	293,527
Wyo . . .	192,982
Nev. . . .	152,615
East . . .	157,771,664
West . .	98,270,109
U. S. . . .	256,041,773

Compare with map of poultry (map 77).



MAP 77

POULTRY ON FARMS
NUMBER, 1910

EACH DOT REPRESENTS
50,000

NUMBER OF POULTRY OF ALL KINDS

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Iowa . .	23,482,880	Mich . .	9,967,039	S. Dak .	5,251,348
Ill.	21,409,835	Wis . . .	9,433,110	Miss . . .	5,070,116
Mo . . .	20,897,208	Nebr . .	9,351,830	N. C. . .	5,053,870
Ohio . .	17,342,289	Ky. . . .	8,764,204	Ala . . .	5,028,104
Kans . .	15,736,038	Okla . .	8,501,237	La	3,542,447
Ind. . . .	13,789,109	Tenn . .	8,056,145	W. Va .	3,310,155
Tex . . .	13,669,645	Va. . . .	6,099,581	N. Dak.	3,268,109
Pa	12,728,341	Cal . . .	6,087,267	S. C. . .	2,946,414
Minn . .	10,697,075	Ark . . .	5,788,570	Md . . .	2,917,307
N. Y. . .	10,678,836	Ga	5,328,584	N. J . . .	2,597,448

POULTRY OF ALL KINDS
(Continued)

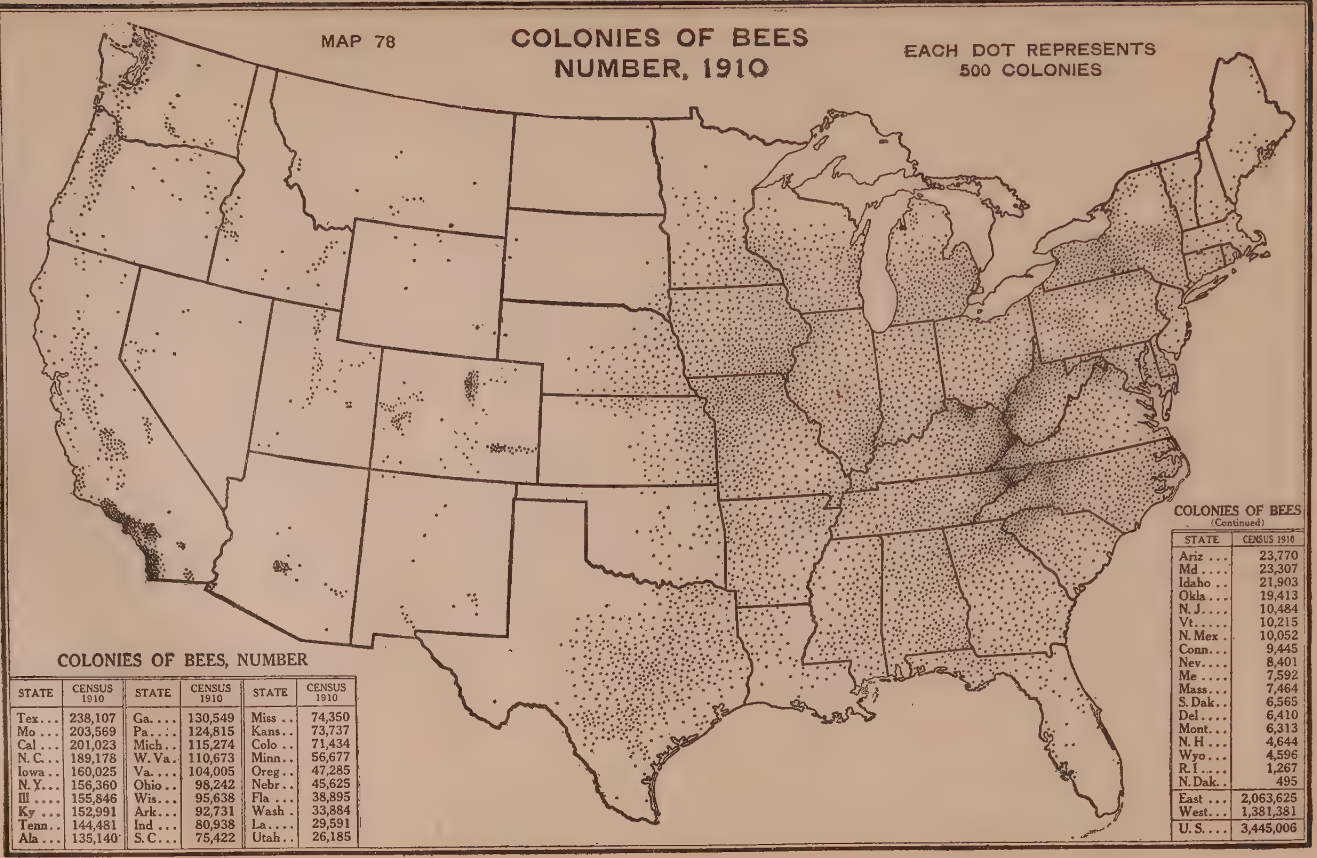
STATE	CENSUS 1910
Wash . .	2,272,775
Oreg . . .	1,823,680
Mass . . .	1,798,380
Me	1,735,962
Colo . . .	1,721,445
Fla	1,326,271
Conn . . .	1,265,702
Idaho . .	1,053,876
Mont . . .	966,690
Vt.	938,524
N. H . . .	924,859
Del	876,081
Utah . . .	691,941
N.Mex. .	531,625
R. I	415,209
Wyo . . .	341,050
Ariz . . .	268,762
Nev	133,217
East . . .	159,801,475
West . . .	136,078,715
U. S. . . .	295,880,190

Compare with map of improved land (map 4).

MAP 78

COLONIES OF BEES NUMBER, 1910

EACH DOT REPRESENTS 500 COLONIES



COLONIES OF BEES, NUMBER

STATE	CENSUS 1910	STATE	CENSUS 1910	STATE	CENSUS 1910
Tex...	238,107	Ga....	130,549	Miss..	74,350
Mo...	203,569	Pa....	124,815	Kans..	73,737
Cal...	201,023	Mich..	115,274	Colo..	71,434
N.C...	189,178	W.Va..	110,673	Minn..	56,677
Iowa..	160,025	Va....	104,005	Oreg..	47,285
N.Y...	156,360	Ohio..	98,242	Nebr..	45,625
Ill....	155,846	Wis...	95,638	Fla...	38,895
Ky...	152,991	Ark...	92,731	Wash.	33,884
Tenn..	144,481	Ind...	80,938	La....	29,591
Ala...	135,140	S.C...	75,422	Utah..	26,185

COLONIES OF BEES (Continued)

STATE	CENSUS 1910
Ariz...	23,770
Md....	23,307
Idaho..	21,903
Okla...	19,413
N.J....	10,484
Vt.....	10,215
N.Mex..	10,052
Conn...	9,445
Nev....	8,401
Me....	7,592
Mass...	7,464
S.Dak..	6,565
Del....	6,410
Mont...	6,313
N.H...	4,644
Wyo...	4,596
R.I....	1,267
N.Dak..	495
East...	2,063,625
West...	1,381,381
U.S....	3,445,006

Compare with map of poultry (map 77).

APPENDIX.

AGRICULTURAL COLLEGES IN THE UNITED STATES.[1]

College instruction in agriculture is given in the colleges and universities receiving the benefits of the acts of Congress of July 2, 1862, August 30, 1890, and March 4, 1907, which are now in operation in all the States and Territories except Alaska. The total number of these institutions is 69, of which 66 maintain courses of instruction in agriculture. In 23 States the agricultural colleges are departments of the States universities. In 16 States and Territories separate institutions having courses in agriculture are maintained for the colored race. All of the agricultural colleges for white persons and several of those for negroes offer four-year courses in agriculture and its related sciences leading to bachelors' degrees, and many provide for graduate study. About 60 of these institutions also provide special, short, or correspondence courses in the different branches of agriculture, including agronomy, horticulture, animal husbandry, poultry raising, cheese making, dairying, sugar making, rural engineering, farm mechanics, and other technical subjects. Officers of the agricultural colleges engage quite largely in conducting farmers' institutes and various other forms of college extension. The agricultural experiment stations, with very few exceptions, are departments of the agricultural colleges. The total number of persons engaged in the work of education and research in the land-grant colleges and the experiment stations in 1915 was 7,930, the number of students (white) in interior courses in the colleges of agriculture and mechanic arts, 64,578; the total number of students in the whole institutions, 114,820;[2] the number of students (white) in the four-year college courses in agriculture, 17,153; the total number of students in the institutions for negroes, 10,170, of whom 2,368 were enrolled in agricultural courses. With a few exceptions, each of these colleges offers free tuition to residents of the State in which it is located. In the excepted cases scholarships are open to promising and energetic students, and in all opportunities are found for some to earn part of their expenses by their own labor. The expenses are from $125 to $300 for the school year.

Agricultural colleges in the United States.

State or Territory.	Name of institution.	Location.	President.
Alabama	Alabama Polytechnic Institute	Auburn	C. C. Thach.
	Agricultural School of the Tuskegee Normal and Industrial Institute.	Tuskegee Institute	R. R. Moton[3,4].
	Agricultural and Mechanical College for Negroes.	Normal	W. S. Buchanan.
Arizona	College of Agriculture of the University of Arizona.	Tucson	R. H. Forbes.[5]
Arkansas	College of Agriculture of the University of Arkansas.	Fayetteville	Martin Nelson.[5]
	Branch Normal College	Pine Bluff	J. G. Ish, jr.
California	College of Agriculture of the University of California.	Berkeley	T. F. Hunt.[5]
Colorado	The State Agricultural College of Colorado.	Fort Collins	C. A. Lory.
Connecticut	Connecticut Agricultural College	Storrs	C. L. Beach.
Delaware	Delaware College	Newark	S. C. Mitchell.
	State College for Colored Students	Dover	W. C. Jason.

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[1] Including only institutions established under the land-grant act of July 2, 1862.
[2] Not including students in correspondence courses and extension schools.
[3] Principal.
[4] Assumes duties May, 1916.
[5] Dean.

Agricultural colleges in the United States—Continued.

State or Territory.	Name of institution.	Location.	President.
Florida	College of Agriculture of the University of Florida.	Gainesville	P. H. Rolfs.[1]
	Florida Agricultural and Mechanical College for Negroes.	Tallahassee	N. B. Young.
Georgia	Georgia State College of Agriculture	Athens	A. M. Soule.
	Georgia State Industrial College	Savannah	R. R. Wright.
Hawaii	College of Hawaii	Honolulu	A. L. Dean.
Idaho	College of Agriculture of the University of Idaho.	Moscow	E. J. Iddings.[1]
Illinois	College of Agriculture of the University of Illinois.	Urbana	E. Davenport.[1]
Indiana	School of Agriculture of Purdue University.	La Fayette	J. H. Skinner.[1]
Iowa	Iowa State College of Agriculture and Mechanic Arts.	Ames	R. A. Pearson.
Kansas	Kansas State Agricultural College	Manhattan	H. J. Waters.
Kentucky	The College of Agriculture of the State University.	Lexington	J. H. Kastle.[1]
	The Kentucky Normal and Industrial Institute for Colored Persons.	Frankfort	G. P. Russell.
Louisiana	Louisiana State University and Agricultural and Mechanical College.	Baton Rouge	T. D. Boyd.
	Southern University and Agricultural and Mechanical College of the State of Louisiana.	Scotland Heights, Baton Rouge.	J. S. Clark.
Maine	College of Agriculture of the University of Maine.	Orono	L. S. Merrill.[1]
Maryland	Maryland Agricultural College	College Park	H. J. Patterson.
	Princess Anne Academy, Eastern Branch of the Maryland Agricultural College.	Princess Anne	T. H. Kiah.[2]
Massachusetts	Massachusetts Agricultural College	Amherst	K. L. Butterfield.
	Massachusetts Institute of Technology [3]	Boston	R. C. Maclaurin.
Michigan	Michigan Agricultural College	East Lansing	F. S. Kedzie.[4]
Minnesota	College of Agriculture of the University of Minnesota.	University Farm, St. Paul.	A. F. Woods.[1]
Mississippi	Mississippi Agricultural and Mechanical College.	Agricultural College.	G. R. Hightower.
	Alcorn Agricultural and Mechanical College.	Alcorn	L. J. Rowan.
Missouri	College of Agriculture of the University of Missouri.	Columbia	F. B. Mumford.[1]
	School of Mines and Metallurgy of the University of Missouri. [3]	Rolla	Durward Copeland.[5]
	Lincoln Institute	Jefferson City	B. F. Allen.
Montana	Montana State College of Agriculture and Mechanic Arts.	Bozeman	Jas. M. Hamilton.
Nebraska	College of Agriculture of the University of Nebraska.	Lincoln	E. A. Burnett.[1]
Nevada	College of Agriculture of the University of Nevada.	Reno	C. S. Knight.[1]
New Hampshire	New Hampshire College of Agriculture and the Mechanic Arts.	Durham	E. T. Fairchild.
New Jersey	Rutgers College (the New Jersey State College for the Benefit of Agriculture and the Mechanic Arts).	New Brunswick	W. H. S. Demarest
New Mexico	New Mexico College of Agriculture and Mechanic Arts.	State College	George E. Ladd.
New York	New York State College of Agriculture	Ithaca	B. T. Galloway.[1]
North Carolina	The North Carolina College of Agriculture and Mechanic Arts.	West Raleigh	D. H. Hill.
	Negro Agricultural and Technical College.	Greensboro	J. B. Dudley.
North Dakota	North Dakota Agricultural College	Agricultural College.	J. H. Worst.
Ohio	College of Agriculture of Ohio State University.	Columbus	Alfred Vivian.[1]
Oklahoma	Oklahoma Agricultural and Mechanical College.	Stillwater	J. M. Cantwell.
	Agricultural and Normal University	Langston	I. E. Page.
Oregon	Oregon State Agricultural College	Corvallis	W. J. Kerr.
Pennsylvania	The School of Agriculture of the Pennsylvania State College.	State College	R. L. Watts.[1]
Porto Rico	College of Agriculture and Mechanic Arts of the University of Porto Rico.	Mayaguez	R. S. Garwood.[1]
Rhode Island	Rhode Island State College	Kingston	Howard Edwards.
South Carolina	The Clemson Agricultural College of South Carolina.	Clemson College	W. M. Riggs.
	State Agricultural and Mechanical College of South Carolina.	Orangeburg	R. S. Wilkinson.
South Dakota	South Dakota State College of Agriculture and Mechanic Arts.	Brookings	E. C. Perisho.

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[1] Dean.
[2] Principal.
[3] Does not maintain courses in agriculture.
[4] Acting president.
[5] Director.

Agricultural colleges in the United States—Continued.

State or Territory.	Name of institution.	Location.	President.
Tennessee	College of Agriculture, University of Tennessee.	Knoxville	Brown Ayres.
	Tennessee Agricultural and Industrial State Normal School.	Nashville	W. J. Hale.
Texas	Agricultural and Mechanical College of Texas.	College Station	W. B. Bizzell.
	Prairie View State Normal and Industrial College.	Prairie View	E. L. Blackshear.[1]
Utah	The Agricultural College of Utah	Logan	J. A. Widtsoe.
Vermont	College of Agriculture of the University of Vermont.	Burlington	J. L. Hills.[2]
Virginia	The Virginia Agricultural and Mechanical College and Polytechnic Institute.	Blacksburg	J. D. Eggleston.
	The Hampton Normal and Agricultural Institute.	Hampton	H. B. Frissell.[1]
Washington	State College of Washington	Pullman	E. O. Holland.
West Virginia	College of Agriculture of West Virginia University.	Morgantown	J. L. Coulter.[2]
	The West Virginia Collegiate Institute	Institute	Byrd Prillerman.
Wisconsin	College of Agriculture of the University of Wisconsin.	Madison	H. L. Russell.[2]
Wyoming	College of Agriculture, University of Wyoming.	Laramie	H. G. Knight.[2]

[1] Principal.

[2] Dean.

AGRICULTURAL EXPERIMENT STATIONS OF THE UNITED STATES, THEIR LOCATIONS AND DIRECTORS.

Alabama (College), Auburn: J. F. Duggar.
Alabama (Canebrake), Uniontown: L. H. Moore.
Alabama (Tuskegee), Tuskegee Institute: G. W. Carver.
Alaska, Sitka (Rampart, Kodiak, and Fairbanks): C. C. Georgeson.[1]
Arizona, Tucson: R. H. Forbes.
Arkansas, Fayetteville: Martin Nelson.
California, Berkeley: T. F. Hunt.
Colorado, Fort Collins: C. P. Gillette.
Connecticut (State), New Haven
Connecticut (Storrs), Storrs } E. H. Jenkins.
Delaware, Newark: Harry Hayward.
Florida, Gainesville: P. H. Rolfs.
Georgia, Experiment: R. J. H. DeLoach.
Guam:[2] A. C. Hartenbower.[1]
Hawaii (Federal), Honolulu: J. M. Westgate.[1]
Hawaii (Sugar Planters'), Honolulu: H. P. Agee.
Idaho, Moscow: J. S. Jones.
Illinois, Urbana: E. Davenport.
Indiana, La Fayette: Arthur Goss.
Iowa, Ames: C. F. Curtiss.
Kansas, Manhattan: W. M. Jardine.
Kentucky, Lexington: J. H. Kastle.
Louisiana (Sugar), New Orleans
Louisiana (State), Baton Rouge
Louisiana (North), Calhoun
Louisiana (Rice), Crowley } W. R. Dodson.
Maine, Orono: C. D. Woods.
Maryland, College Park: H. J. Patterson.
Massachusetts, Amherst: W. P. Brooks.
Michigan, East Lansing: R. S. Shaw.
Minnesota, University Farm, St. Paul: A. F. Woods.
Mississippi, Agricultural College: E. R. Lloyd.
Missouri (College), Columbia: F. B. Mumford.
Missouri (Fruit), Mountain Grove: Paul Evans.
Montana, Bozeman: F. B. Linfield.
Nebraska, Lincoln: E. A. Burnett.
Nevada, Reno: S. B. Doten.
New Hampshire, Durham: J. C. Kendall.
New Jersey (State), New Brunswick
New Jersey (College), New Brunswick } J. G. Lipman.
New Mexico, State College: Fabian Garcia.
New York (State), Geneva: W. H. Jordan.
New York (Cornell), Ithaca: B. T. Galloway.
North Carolina, Raleigh and West Raleigh: B. W. Kilgore.
North Dakota, Agricultural College: T. P. Cooper.
Ohio, Wooster: C. E. Thorne.
Oklahoma, Stillwater: W. L. Carlyle.
Oregon, Corvallis: A. B. Cordley.
Pennsylvania, State College: R. L. Watts.
Pennsylvania (Institute of Animal Nutrition), State College: H. P. Armsby.
Porto Rico (Federal), Mayaguez: D. W. May.[1]
Porto Rico (Insular), Rio Piedras: W. V. Tower.
Rhode Island, Kingston: B. L. Hartwell.
South Carolina, Clemson College: J. N. Harper.
South Dakota, Brookings: J. W. Wilson.
Tennessee, Knoxville: H. A. Morgan.
Texas, College Station: B. Youngblood.
Utah, Logan: E. D. Ball.
Vermont, Burlington: J. L. Hills.
Virginia (College), Blacksburg: W. J. Schoene.[3]
Virginia (Truck), Norfolk: T. C. Johnson.
Washington, Pullman: I. D. Cardiff.
West Virginia, Morgantown: J. L. Coulter.
Wisconsin, Madison: H. L. Russell.
Wyoming, Laramie: H. G. Knight.

[1] Agronomist in charge.

[2] Address: Island of Guam, via San Francisco.

[3] Acting director.

STATE OFFICIALS IN CHARGE OF AGRICULTURE.

Alabama: Commissioner of Agriculture, Montgomery.
Alaska: Agronomist in charge of Experiment Stations, Sitka.
Arizona: Director of Experiment Station, Tucson.
Arkansas: Commissioner of Agriculture, Little Rock.
California: Secretary of State Board of Agriculture, Sacramento.
Colorado: Secretary of State Board of Agriculture, Fort Collins.
Connecticut: Secretary of State Board of Agriculture, Hartford.
Delaware: Secretary of State Board of Agriculture, Dover.
Florida: Commissioner of Agriculture, Tallahassee.
Georgia: Commissioner of Agriculture, Atlanta.
Guam: Agronomist in charge of Experiment Station, Guam.
Hawaii: Secretary of Territorial Board of Agriculture, Honolulu.
Idaho: Commissioner of Immigration, Labor, and Statistics, Boise.
Illinois: Secretary of State Board of Agriculture, Springfield.
Indiana: Secretary of State Board of Agriculture, Indianapolis.
Iowa: Secretary of State Board of Agriculture, Des Moines.
Kansas: Secretary of State Board of Agriculture, Topeka.
Kentucky: Commissioner of Agriculture, Frankfort.
Louisiana: Commissioner of Agriculture, Baton Rouge.
Maine: Commissioner of Agriculture, Augusta.
Maryland: Director of Experiment Station, College Park.
Massachusetts: Secretary of State Board of Agriculture, Boston.
Michigan: Secretary of State Board of Agriculture, East Lansing.
Minnesota: Secretary of State Agricultural Society, St. Paul.
Mississippi: Commissioner of Agriculture, Jackson.
Missouri: Secretary of State Board of Agriculture, Columbia.
Montana: Commissioner of Agriculture and Publicity, Helena.
Nebraska: Secretary of State Board of Agriculture, Lincoln.
Nevada: Secretary of State Board of Agriculture, Carson City.
New Hampshire: Secretary of State Board of Agriculture, Concord.
New Jersey: Secretary of State Board of Agriculture, Trenton.
New Mexico: Director of Experiment Station, State College.
New York: Commissioner of Agriculture, Albany.
North Carolina: Commissioner of Agriculture, Raleigh.
North Dakota: Commissioner of Agriculture, Bismarck.
Ohio: Secretary of State Board of Agriculture, Columbus.
Oklahoma: Commissioner of Agriculture, Oklahoma.
Oregon: Secretary of State Board of Agriculture, Salem.
Pennsylvania: Commissioner of Agriculture, Harrisburg.
Philippine Islands: Director of Agriculture, Manila.
Porto Rico: President Board of Commissioners of Agriculture, Rio Piedras.
Rhode Island: Secretary of State Board of Agriculture, Providence.
South Carolina: Commissioner of Agriculture, Columbia.
South Dakota: Secretary of State Board of Agriculture, Huron.
Tennessee: Commissioner of Agriculture, Nashville.
Texas: Commissioner of Agriculture, Austin.
Utah: Director of Experiment Station, Logan.
Vermont: Commissioner of Agriculture, Montpelier.
Virginia: Commissioner of Agriculture, Richmond.
Washington: Commissioner of Agriculture, Olympia.
West Virginia: Commissioner of Agriculture, Charleston.
Wisconsin: Commissioner of Agriculture, Madison.
Wyoming: Director of Experiment Station, Laramie.

STATE OFFICERS IN CHARGE OF COOPERATIVE AGRICULTURAL EXTENSION WORK.

Alabama: J. F. Duggar, Alabama Polytechnic Institute, Auburn.
Arizona: S. F. Morse, College of Agriculture, University of Arizona, Tucson.
Arkansas: J. H. Miller, College of Agriculture, University of Arkansas, Fayetteville.
California: W. T. Clarke, College of Agriculture, University of California, Berkeley.
Colorado: H. T. French, State Agricultural College of Colorado, Fort Collins.
Connecticut: H. J. Baker, Connecticut Agricultural College, Storrs.
Delaware: H. Hayward, Delaware College, Newark.
Florida: P. H. Rolfs, College of Agriculture, University of Florida, Gainesville.
Georgia: J. Phil Campbell, Georgia State College of Agriculture, Athens.
Idaho: O. D. Center, College of Agriculture, University of Idaho. (Boise.)
Illinois: W. F. Handschin, College of Agriculture, University of Illinois, Urbana.
Indiana: G. I. Christie, Purdue University, La Fayette.
Iowa: R. K. Bliss, Iowa State College, Ames.
Kansas: E. C. Johnson, Kansas State Agricultural College, Manhattan.

Kentucky: Fred Mutchler, College of Agriculture, State University, Lexington.

Louisiana: W. R. Dodson, Louisiana State University and Agricultural and Mechanical College, Baton Rouge.

Maine: L. S. Merrill, College of Agriculture, University of Maine, Orono.

Maryland: T. B. Symons, Maryland Agricultural College, College Park.

Massachusetts: W. D. Hurd, Massachusetts Agricultural College, Amherst.

Michigan: R. J. Baldwin, Michigan Agricultural College, East Lansing.

Minnesota: A. D. Wilson, College of Agriculture, University of Minnesota, University Farm, St. Paul.

Mississippi: E. R. Lloyd, Mississippi Agricultural and Mechanical College, Agricultural College.

Missouri: A. J. Meyer, College of Agriculture, University of Missouri, Columbia.

Montana: F. S. Cooley, Montana State College of Agriculture and Mechanic Arts, Bozeman.

Nebraska: C. W. Pugsley, College of Agriculture, University of Nebraska, Lincoln.

Nevada: C. A. Norcross, College of Agriculture, University of Nevada, Reno.

New Hampshire: J. C. Kendall, New Hampshire College of Agriculture and Mechanic Arts, Durham.

New Jersey: Alva Agee, Rutgers College, New Brunswick.

New Mexico: A. C. Cooley, New Mexico College of Agriculture and Mechanic Arts, State College.

New York: B. T. Galloway, New York State College of Agriculture, Ithaca.

North Carolina: B. W. Kilgore, North Carolina College of Agriculture and Mechanic Arts, West Raleigh.

North Dakota: T. P. Cooper, North Dakota Agricultural College, Agricultural College.

Ohio: C. S. Wheeler, College of Agriculture, Ohio State University, Columbus.

Oklahoma: W. D. Bentley, Oklahoma Agricultural and Mechanical College, Stillwater.

Oregon: R. D. Hetzel, Oregon State Agricultural College, Corvallis.

Pennsylvania: M. S. McDowell, Pennsylvania State College, State College.

Rhode Island: A. E. Stene, Rhode Island State College, Kingston.

South Carolina: W. W. Long, Clemson Agricultural College of South Carolina, Clemson College.

South Dakota: G. W. Randlett, South Dakota State College, Brookings.

Tennessee: C. A. Keffer, College of Agriculture, University of Tennessee, Knoxville.

Texas: Clarence Ousley, Agricultural and Mechanical College of Texas, College Station.

Utah: E. G. Peterson, Agricultural College of Utah, Logan.

Vermont: Thos. Bradlee, College of Agriculture, University of Vermont, Burlington.

Virginia: J. D. Eggleston, Virginia Polytechnic Institute, Blacksburg.

Washington: W. S. Thornber, State College of Washington, Pullman.

West Virginia: C. R. Titlow, College of Agriculture, West Virginia University, Morgantown.

Wisconsin: K. L. Hatch, College of Agriculture, University of Wisconsin, Madison.

Wyoming: A. E. Bowman, College of Agriculture, University of Wyoming, Laramie.

STATISTICS OF THE PRINCIPAL CROPS.

[Figures furnished by the Bureau of Crop Estimates, Department of Agriculture, except where otherwise stated. All prices on gold basis.]

NOTE.—In all the following tables the figures for the latest year are subject to revision.

CORN.

TABLE 1.—*Corn: Area and production of undermentioned countries, 1913–1915.*

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	105,820,000	103,435,000	108,321,000	2,446,988,000	2,672,804,000	3,054,535,000
Canada:						
Ontario	260,000	239,000	237,000	16,182,000	13,410,000	14,149,000
Quebec	18,000	17,000	16,000	586,000	514,000	445,000
Other	(1)	(1)	....	5,000	....	....
Total Canada	278,000	256,000	253,000	16,773,000	13,924,000	14,594,000
Mexico	[2] 6,093,000	4,748,000	(3)	[2] 82,519,000	78,443,000	60,000,000
Total	....	....	....	2,546,280,000	2,765,171,000	3,129,129,000
SOUTH AMERICA.						
Argentina	9,464,000	10,260,000	10,386,000	196,642,000	263,135.000	338,235,000
Chile	65,000	59,000	(3)	1,647,000	1,505,000	1,822,000
Uruguay	629,000	692,000	852,000	5,343,000	7,142,000	11,495,000
Total	10,158,000	11,011,000	....	203,632,000	271,782,000	351,552,000
EUROPE.						
Austria-Hungary:						
Austria	706,000	(3)	(3)	13,286,000	12,000,000	12,000,000
Hungary proper	6,022,000	6,129,000	6,194,000	176,694,000	172,308,000	180,550,000
Croatia-Slavonia	1,083,000	(3)	(3)	28,953,000	25,000.000	(3)
Bosnia-Herzegovina	805,000	(3)	(3)	7,559,000	7,000,000	(3)
Total Austria-Hungary	8,723,000	(3)	(3)	226,492,000	216,308,000	(3)
Bulgaria	1,568,000	1,571,000	(3)	33,200,000	30.901.000	35,000,000
France	1,133,000	1,128,000	766,000	21,078,000	22,530,000	14,000,000
Italy	3,888,000	3,680,000	3,954,000	108,388,000	105,006,000	118,103,000
Portugal	(3)	(3)	(3)	15,000,000	15,000,000	15,000,000
Roumania	5,305,000	5,104,000	5,207,000	114,662,000	105.552.000	110.230,000
Russia:						
Russia proper	3,385,000	....	3,194,000	59,798,000	....	....
Northern Caucasia	825,000	....	842,000	12,995,000	....	....
Total Russia	4,210,000	4,043,000	4,036,000	72,793,000	80,608,000	74,806,000
Servia	1,445,000	(3)	(3)	23,621,000	20,000,000	(3)
Spain	1,105,000	1.137,000	1,140,000	25,140,000	30,325,000	25.327,000
Total	....	....	....	640,374,000	626,230,000	....
ASIA.						
India:						
British	6,157,000	4,874,000	(3)	87,240,000	64,800,000	(3)
Native States	1,063,000	(3)	(3)	(3)	(3)	(3)
Total	....	....	....	87,240,000	64,800,000	....
Japan	133,000	141,000	144,000	3,559,000	3,753,000	3,749,000
Philippine Islands	918,000	1,041,000	(3)	9,235,000	13,336,000	(3)
Total	....	....	....	100,034,000	81,889,000	....

[1] Less than 500 acres.

[2] Area and production 1912.

[3] No official statistics.

CORN—Continued.

TABLE 1.—*Corn: Area and production of undermentioned countries, 1913–1915*—Contd.

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
AFRICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Algeria	24,000	(1)	(1)	394,000	350,000	(1)
Egypt [2]	1,789,000	1,763,000	1,907,000	57,044,000	78,253,000	(1)
Union of South Africa	(1)	(1)	(1)	[3] 30,830,000	[3] 30,830,000	[3] 30,830,000
Total				88,268,000	109,433,000	
AUSTRALASIA.						
Australia:						
Queensland	118,000	157,000	176,000	2,604,000	4,039,000	4,394,000
New South Wales [4]	177,000	157,000	(1)	5,273,000	4,593,000	(1)
Victoria	20,000	18,000	(1)	738,000	826,000	(1)
Western Australia	(5)	(5)	(1)		1,000	(1)
South Australia [6]	(5)	(5)	(1)	4,000	3,000	(1)
Total Australia	315,000	332,000		8,619,000	9,462,000	
New Zealand	5,000	6,000	5,000	222,000	312,000	(1)
Total Australasia	320,000	338,000		8,841,000	9,774,000	
Grand total				3,587,429,000	3,864,279,000	

[1] No official statistics.
[2] Includes millet.
[3] Census of 1911.
[4] Includes Federal Territory.
[5] Less than 500 acres.
[6] Includes Northern Territory.

TABLE 2.—*Corn: Total production of countries mentioned in Table 1, 1895–1915.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bushels.		*Bushels.*		*Bushels.*		*Bushels.*
1895	2,834,750,000	1901	2,366,883,000	1906	3,963,645,000	1911	3,481,007,000
1896	2,964,435,000	1902	3,187,311,000	1907	3,420,321,000	1912	4,371,888,000
1897	2,587,206,000	1903	3,066,506,000	1908	3,606,931,000	1913	3,587,429,000
1898	2,682,619,000	1904	3,109,252,000	1909	3,563,226,000	1914	3,864,279,000
1899	2,724,100,000	1905	3,461,181,000	1910	4,031,630,000	1915	
1900	2,792,561,000						

CORN—Continued.

TABLE 3.—*Corn: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.	Chicago cash price per bushel, contract.[1]				Domestic exports, including corn meal, fiscal year beginning July 1.	Per cent of crop exported.
						December.		Following May.			
						Low.	High.	Low.	High.		
	Acres.	*Bush.*	*Bushels.*	*Cents.*	*Dollars.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Bushels.*	*P.ct.*
1849	......	......	*592,071,000*	......	......	......	......	......	......	7,632,860	1.3
1859	......	......	*838,793,000*	......	......	......	......	......	......	4,248,991	.5
1866	34,307,000	25.3	867,946,000	47.4	411,451,000	53	62	64	79	16,026,947	1.8
1867	32,520,000	23.6	768,320,000	57.0	437,770,000	61	65	61	71	12,493,522	1.6
1868	34,887,000	26.0	906,527,000	46.8	424,057,000	38	58	44	51	8,286,665	.9
1869	37,103,000	23.6	874,320,000	59.8	522,551,000	56	67	73	85	2,140,487	.2
1869	......	......	*760,945,000*	......	......	......	......	......	......	......	......
1870	38,647,000	28.3	1,094,255,000	49.4	540,520,000	41	59	46	52	10,673,553	1.0
1871	34,091,000	29.1	991,898,000	43.4	430,356,000	36	39	38	43	35,727,010	3.6
1872	35,527,000	30.8	1,092,719,000	35.3	385,736,000	27	28	34	39	40,154,374	3.7
1873	39,197,000	23.8	932,274,000	44.2	411,961,000	40	49	49	59	35,985,834	3.9
1874	41,037,000	20.7	850,148,000	58.4	496,271,000	64	76	53	67	30,025,036	3.5
1875	44,841,000	29.5	1,321,069,000	36.7	484,675,000	40	47	41	45	50,910,532	3.9
1876	49,033,000	26.2	1,283,828,000	34.0	436,109,000	40	43	43	56	72,652,611	5.7
1877	50,369,000	26.7	1,342,558,000	34.8	467,635,000	41	49	35	41	87,192,110	6.5
1878	51,585,000	26.9	1,388,219,000	31.7	440,281,000	30	32	33	36	87,884,892	6.3
1879	53,085,000	29.2	1,547,902,000	37.5	580,486,000	39	43¼	32⅜	36⅛	99,572,329	6.4
1879	*62,369,000*	*28.1*	*1,754,592,000*	......	......	......	......	......	......	......	......
1880	62,318,000	27.6	1,717,435,000	39.6	679,714,000	35⅝	42	41½	45	93,648,147	5.5
1881	64,262,000	18.6	1,194,916,000	63.6	759,482,000	58½	63½	69	76⅞	44,340,683	3.7
1882	65,660,000	24.6	1,617,025,000	48.5	783,867,000	49¼	61	53¼	56¾	41,655,653	2.6
1883	68,302,000	22.7	1,551,067,000	42.4	658,051,000	54¼	63⅛	52½	57	46,258,606	3.0
1884	69,684,000	25.8	1,795,528,000	35.7	640,736,000	34½	40¼	44¾	49	52,876,456	2.9
1885	73,130,000	26.5	1,936,176,000	32.8	635,675,000	36	42¾	34¼	36¾	64,829,617	3.3
1886	75,694,000	22.0	1,665,441,000	36.6	610,311,000	35¾	38	36⅞	39⅜	41,368,584	2.5
1887	72,393,000	20.1	1,456,161,000	44.4	646,107,000	47	51⅛	54	60	25,360,869	1.7
1888	75,673,000	26.3	1,987,790,000	34.1	677,562,000	33⅛	35⅞	33⅛	35⅜	70,841,673	3·6
1889	78,320,000	27.0	2,112,892,000	28.3	597,919,000	29¼	35	32¾	35	103,418,709	4.9
1889	*72,088,000*	*29.4*	*2,122,328,000*	......	......	......	......	......	......	......	......
1890	71,971,000	20.7	1,489,970,000	50.6	754,433,000	47¾	53	55	69½	32,041,529	2.2
1891	76,205,000	27.0	2,060,154,000	40.6	836,439,000	39⅜	59	40¾	[2] 100	76,602,285	3.7
1892	70,627,000	23.1	1,628,464,000	39.4	642,147,000	40	42⅞	39½	44½	47,121,894	2.9
1893	72,036,000	22.5	1,619,496,000	36.5	591,626,000	34¼	36½	36¾	38½	66,489,529	4.1
1894	62,582,000	19.4	1,212,770,000	45.7	554,719,000	44¾	47½	47¾	55½	28,585,405	2.4
1895	82,076,000	26.2	2,151,139,000	25.3	544,986,000	25	26¾	27½	29½	101,100,375	4.7
1896	81,027,000	28.2	2,283,875,000	21.5	491,007,000	22½	23¾	23	25½	178,817,417	7.8
1897	80,095,000	23.8	1,902,968,000	26.3	501,073,000	25	27½	32⅜	37	212,055,543	11.1
1898	77,722,000	24.8	1,924,185,000	28.7	552,023,000	33⅛	38	32½	34⅜	177,255,046	9.2
1899	82,109,000	25.3	2,078,144.000	30.3	629,210,000	30	31½	36	40½	213,123,412	10.3
1899	*94,914,000*	*28.1*	*2,666,324,000*	......	......	......	......	......	......	......	......
1900	83,321,000	25.3	2,105,103,000	35.7	751,220,000	35¼	40½	42⅝	58½	181,405,473	8.6
1901	91,350,000	16.7	1,522,520,000	60.5	921,556,000	62½	67½	59⅛	64¾	28,028,688	1.8
1902	94,044,000	26.8	2,523,648,000	40.3	1,017,017,000	43¾	57¼	44	46	76,639,261	3.0
1903	88,092,000	25.5	2,244,177,000	42.5	952,869,000	41	43¾	47¼	50	58,222,061	2.6
1904	92,232,000	26.8	2,467,481,000	44.1	1,087,461,000	43½	49	48	64½	90,293,483	3.7
1905	94,011,000	28.8	2,707,994,000	41.2	1,116,697,000	42	50¼	47½	50	119,893,833	4.4
1906	96,738,000	30.3	2,927,416,000	39.9	1,166,626,000	40	46	49½	56	86,368,228	3.0
1907	99,931,000	25.9	2,592,320,000	51.6	1,336,901,000	57½	61½	67¾	82	55,063,860	2.1
1908	101,788,000	26.2	2,668,651,000	60.6	1,616,145,000	56¾	62¾	72¼	76	37,665,040	1.4
1909	108,771,000	25.5	2,772,376,000	......	......	......	......	......	......	......	......
1909	*98,383,000*	*25.9*	*2,552,190,000*	57.9	1,477,223,000	62½	66	56	63	38,128,498	1.5
1910[3]	104,035,000	27.7	2,886,260,000	48.0	1,384,817,000	45½	50	52¼	55¼	65,614,522	2.3
1911	105,825,000	23.9	2,531,488,000	61.8	1,565,258,000	68	70	76¼	82½	41,797,291	1.7
1912	107,083,000	29.2	3,124,746,000	48.7	1,520,454,000	47½	54	55¼	60	50,780,143	1.6
1913	105,820,000	23.1	2,446,988,000	69.1	1,692,092,000	64	73½	67	72½	10,725,819	.4
1914	103,435,000	25.8	2,672,804,000	64.4	1,722,070,000	62¼	68¼	50½	56	50,668,303	1.9
1915	108,321,000	28.2	3,054,535,000	57.5	1,755,859,000	69½	75	......	......	......	......

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[1] No. 2 to 1908.

[2] Coincident with "corner."

[3] Figures adjusted to census basis.

CORN—Continued.

TABLE 4.—*Corn: Acreage, production, and total farm value, by States, 1914 and 1915.*

State.	Thousands of acres.		Production (thousands of bushels).		Total value, basis Dec. 1 price (thousands of dollars).	
	1915	1914	1915	1914	1915	1914
Maine	16	16	656	736	558	648
New Hampshire	22	21	990	966	752	792
Vermont	47	45	2,256	2,115	1,895	1,713
Massachusetts	48	48	2,304	2,256	1,843	1,918
Rhode Island	12	11	516	462	516	453
Connecticut	65	61	3,250	2,806	2,762	2,497
New York	605	550	24,200	22,550	18,876	18,716
New Jersey	285	272	10,830	10,472	8,122	7,959
Pennsylvania	1,520	1,463	58,520	62,178	40,964	45,390
Delaware	210	197	6,615	7,092	4,101	4,397
Maryland	710	663	24,850	24,531	15,158	16,681
Virginia	2,125	1,921	60,562	39,380	42,999	31,898
West Virginia	800	732	25,200	22,692	18,648	18,834
North Carolina	3,050	2,835	64,050	57,550	49,318	49,493
South Carolina	2,155	1,975	35,558	36,538	30,935	33,615
Georgia	4,330	4,000	64,950	56,000	50,661	47,600
Florida	800	700	12,000	11,200	8,760	8,960
Ohio	3,760	3,650	156,040	142,715	87,382	87,056
Indiana	5,025	4,949	190,950	163,317	97,384	94,724
Illinois	10,449	10,346	376,164	300,034	203,129	183,021
Michigan	1,750	1,750	56,000	63,000	38,080	42,210
Wisconsin	1,775	1,725	40,825	69,862	27,761	45,410
Minnesota	2,700	2,600	62,100	91,000	38,502	47,320
Iowa	10,100	10,248	303,000	389,424	154,530	214,183
Missouri	7,100	7,200	209,450	158,400	119,386	107,712
North Dakota	700	500	9,800	14,000	6,566	8,120
South Dakota	3,250	3,000	94,250	78,000	46,182	39,000
Nebraska	7,100	7,100	213,000	173,950	100,110	92,194
Kansas	5,550	5,850	172,050	108,225	87,746	68,182
Kentucky	3,800	3,650	114,000	91,250	63,840	58,400
Tennessee	3,500	3,350	94,500	80,400	54,810	54,672
Alabama	3,900	3,264	66,300	55,488	45,747	44,390
Mississippi	3,650	3,150	69,350	58,275	45,078	42,541
Louisiana	2,200	2,000	45,100	38,600	28,864	28,950
Texas	7,450	6,400	175,075	124,800	101,544	92,352
Oklahoma	4,200	4,000	123,900	50,000	56,994	32,000
Arkansas	2,700	2,400	62,100	42,000	39,744	33,600
Montana	70	50	1,960	1,400	1,352	1,064
Wyoming	25	21	625	525	419	368
Colorado	470	462	11,280	10,626	6,204	6,376
New Mexico	105	92	2,730	2,576	1,993	2,061
Arizona	20	18	600	576	690	691
Utah	13	12	442	420	354	315
Nevada	1	1	35	36	33	40
Idaho	22	19	770	589	500	424
Washington	39	36	1,053	972	811	710
Oregon	33	22	1,155	660	947	541
California	64	60	2,624	2,160	2,309	1,879
United States	108,321	103,435	3,054,535	2,672,804	1,755,859	1,722,070

CORN—Continued.

TABLE 5.—*Corn: Production and distribution in the United States, 1897–1915.*

[000 omitted.]

Year.	Old stock on farms Nov. 1.	Crop.	Total supplies.	Stock on farms Mar. 1 following.	Shipped out of county where grown.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1897	290,894	1,902,968	2,193,902	782,871	411,617
1898	137,894	1,924,185	2,062,079	800,533	396,005
1899	113,644	2,078,144	2,191,788	773,730	348,098
1900	92,328	2,105,103	2,197,431	776,166	478,417
1901	95,825	1,522,520	1,618,345	441,132	153,213
1902	29,267	2,523,648	2,552,915	1,050,653	557,296
1903	131,210	2,244,177	2,375,387	839,053	419,877
1904	80,246	2,467,481	2,547,727	954,268	551,635
1905	82,285	2,707,994	2,790,279	1,108,364	681,539
1906	119,633	2,927,416	3,047,049	1,297,979	679,544
1907	130,995	2,592,320	2,723,315	962,429	467,675
1908	71,124	2,668,651	2,739,775	1,047,763	568,129
1909	79,779	2,552,190	2,631,969	977,561	635,248
1910	115,696	2,886,260	3,001,956	1,165,378	661,777
1911	123,824	2,531,488	2,655,312	884,069	517,704
1912	64,764	3,124,746	3,189,510	1,289,655	680,796
1913	137,972	2,446,988	2,584,960	866,392	422,091
1914	80,046	2,672,804	2,752,850	910,894	498,285
1915	96,009	3,054,535	3,150,544	....	....

CORN—Continued.

TABLE 6.—*Corn: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
Me	40.8	37.0	37.0	40.5	38.0	46.0	44.0	40.0	38.0	46.0	41.0	80	90	75	87	88	85	35.16	34.85
N. H	41.2	37.5	35.0	39.0	35.1	46.0	45.0	46.0	37.0	46.0	45.0	76	82	75	81	82	76	34.17	34.20
Vt	40.3	35.5	36.0	40.3	37.0	43.0	41.0	40.0	37.0	47.0	46.0	75	80	72	81	81	84	31.60	38.64
Mass	42.3	30.7	36.0	40.4	38.0	45.5	44.0	45.0	40.5	47.0	47.0	78	83	77	85	85	80	35.48	37.60
R. I	38.8	33.1	31.2	42.8	33.2	40.0	45.0	41.5	36.5	42.0	43.0	89	95	88	99	98	100	37.95	43.00
Conn	44.2	40.0	33.0	41.3	41.0	53.2	48.5	50.0	38.5	46.0	50.0	78	83	77	85	89	85	37.72	42.50
N. Y	36.2	34.9	27.0	38.8	36.0	38.3	38.5	38.6	28.5	41.0	40.0	74	77	70	81	83	78	27.58	31.20
N. J	36.5	36.3	31.5	38.0	32.7	36.0	36.8	38.0	39.5	38.5	38.0	68	71	68	75	76	75	26.49	28.50
Penn	39.2	40.2	32.5	39.5	32.0	41.0	44.5	42.5	39.0	42.5	38.5	66	68	63	72	73	70	28.07	26.95
Del	31.9	30.0	27.5	32.0	31.0	31.8	34.0	34.0	31.5	36.0	31.5	56	61	51	59	62	62	19.10	19.53
Md	34.9	35.0	34.2	36.6	31.4	33.5	36.5	36.5	33.0	37.0	35.0	60	63	55	65	68	61	21.82	21.35
Va	24.7	24.3	25.0	26.0	23.2	25.5	24.0	24.0	26.0	20.5	28.5	70	73	71	76	81	71	17.50	20.24
W. Va	30.0	30.3	28.0	31.2	31.4	26.0	25.7	33.8	31.0	31.0	31.5	72	77	65	80	83	74	21.99	23.31
N. C	18.3	15.3	16.5	18.0	16.8	18.6	18.4	18.2	19.5	20.3	21.0	80	82	83	88	86	77	15.79	16.17
S. C	16.7	12.2	15.1	14.1	16.7	18.5	18.2	17.9	19.5	18.5	16.5	87	91	85	97	92	87	16.58	14.36
Ga	14.0	12.0	13.0	12.5	13.9	14.5	16.0	13.8	15.5	14.0	15.0	81	83	85	91	85	78	12.46	11.70
Fla	13.2	11.0	11.3	10.5	12.6	13.0	14.6	13.0	15.0	16.0	15.0	79	80	79	82	80	73	11.62	10.95
Ohio	39.1	42.6	34.6	38.5	39.5	36.5	38.6	42.8	37.5	39.1	41.5	54	58	45	63	61	56	21.18	23.24
Ind	36.8	39.6	36.0	30.3	40.0	39.3	36.0	40.3	36.0	33.0	38.0	50	54	42	60	58	51	18.57	19.38
Ill	34.4	36.1	36.0	31.6	35.9	39.1	33.0	40.0	27.0	29.0	36.0	50	55	41	63	61	54	16.82	19.44
Mich	33.5	37.0	30.1	31.8	35.4	32.4	33.0	34.0	33.5	36.0	32.0	60	65	57	67	67	68	20.91	21.76
Wis	34.8	41.2	32.0	33.7	33.0	32.5	36.3	35.7	40.5	40.5	23.0	57	60	51	60	65	68	21.50	15.64
Minn	32.3	33.6	27.0	29.0	34.8	32.7	33.7	34.5	40.0	35.0	23.0	49	53	37	53	52	62	16.95	14.26
Iowa	34.4	39.5	29.5	31.7	31.5	36.3	31.0	43.0	34.0	38.0	30.0	47	53	35	60	55	51	17.17	15.30
Mo	27.7	32.3	31.0	27.0	26.4	33.0	26.0	32.0	17.5	22.0	29.5	55	60	46	74	68	57	14.55	16.82
N. Dak	23.9	27.8	20.0	23.8	31.0	14.0	25.0	26.7	28.8	28.0	14.0	55	60	43	52	58	67	13.16	9.38
S. Dak	27.8	33.5	25.5	29.7	31.7	25.0	22.0	30.6	25.5	26.0	29.0	46	53	37	56	50	49	12.05	14.21
Nebr	25.0	34.1	24.0	27.0	24.8	25.8	21.0	24.0	15.0	24.5	30.0	46	55	37	65	53	47	10.49	14.10
Kans	20.2	28.9	22.1	22.0	19.9	19.0	14.5	23.0	3.2	18.5	31.0	52	63	40	78	63	51	8.21	15.81
Ky	27.6	33.0	28.2	25.2	29.0	29.0	26.0	30.4	20.5	25.0	30.0	59	63	55	76	64	56	16.01	16.80
Tenn	25.2	28.1	26.0	24.8	22.0	25.9	26.8	26.5	20.5	24.0	27.0	62	61	61	77	68	58	15.82	15.66
Ala	16.4	16.0	15.5	14.7	13.5	18.0	18.0	17.2	17.3	17.0	17.0	77	78	79	89	80	69	13.88	11.73
Miss	18.3	18.5	17.0	17.3	14.5	20.5	19.0	18.3	20.0	18.5	19.0	72	72	71	77	73	65	13.70	12.35
La	19.9	17.2	17.5	19.8	23.0	23.6	18.5	18.0	22.0	19.3	20.5	68	70	68	77	75	64	13.92	13.12
Tex	20.2	22.5	21.0	25.7	15.0	20.6	9.5	21.0	24.0	19.5	23.5	67	80	64	82	74	58	13.63	13.63
Okla	19.4	33.3	24.4	24.8	17.0	16.0	6.5	18.7	11.0	12.5	29.5	52	70	41	72	64	46	7.26	13.57
Ark	20.4	23.6	17.2	20.2	18.0	24.0	20.8	20.4	19.0	17.5	23.0	67	72	67	78	80	64	14.29	14.72
Mont	26.7	23.4	22.5	23.4	35.0	23.0	26.5	25.5	31.5	28.0	28.0	78	80	70	77	76	69	21.29	19.32
Wyo	23.5	27.0	25.0	28.0	28.0	10.0	15.0	23.0	29.0	25.0	25.0	71	76	64	80	70	67	14.68	16.75
Colo	21.2	27.9	23.5	20.2	24.2	19.9	14.0	20.8	15.0	23.0	24.0	63	78	50	73	60	55	11.60	13.20
N. Mex	25.9	29.4	29.0	27.0	31.3	23.0	24.7	22.4	18.5	28.0	26.0	79	84	75	75	80	73	18.91	18.98
Ariz	32.1	29.5	37.5	33.2	32.1	32.5	33.0	33.0	28.0	32.0	30.0	103	97	100	110	120	115	33.90	34.50
Utah	31.7	32.0	25.5	29.4	31.4	30.3	35.0	30.0	34.0	35.0	34.0	77	81	75	70	75	80	25.27	27.20
Nev	32.6	....	....	....	....	30.0	30.5	30.0	34.0	36.0	35.0	99	90	98	118	110	93	33.31	32.55
Idaho	31.1	28.3	30.0	29.0	30.6	32.0	30.0	32.8	32.0	31.0	35.0	70	85	70	68	72	65	23.05	22.75
Wash	27.1	25.2	27.0	25.5	27.8	28.0	28.5	27.3	28.0	27.0	27.0	75	79	77	80	73	77	21.33	20.79
Oreg	29.3	27.6	27.5	27.8	30.7	25.5	28.5	31.5	28.5	30.0	35.0	76	80	75	70	82	82	22.74	28.70
Cal	35.6	34.9	34.0	32.0	34.8	37.5	36.0	37.0	33.0	36.0	41.0	85	90	85	88	87	88	30.84	36.08
U. S	26.6	30.3	25.9	26.2	25.5	27.7	23.9	29.2	23.1	25.8	28.2	56.1	61.8	48.7	69.1	64.4	57.5	14.99	16.21

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[1] Based upon farm price Dec. 1.

CORN—Continued.

Table 7.—*Corn: Wholesale price per bushel, 1900–1915.*

Date.	New York.		Baltimore.		Cincinnati.		Chicago.		Detroit.		St. Louis.		San Francisco.	
	No. 2. yellow.		Mixed.		No. 2 mixed.[1]		Contract.		No. 3.		No. 2.		White (per 100 lbs.).	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Dolls.*	*Dolls.*
1900	41	52¼	36⅝	48⅞	32¾	47	30½	49½	31½	37	30½	43	1.00	1.30
1901	45⅞	76	41½	68	38	71½	36	67½	38	67	35	70	1.10	1.75
1902	59	76½	43	77	44	69	43¾	88	47	67	40½	69¼	1.30	1.65
1903	49⅞	63	46½	61	40	54½	41	53	38	53¾	39	55	1.17½	1.57½
1904	53¼	72	49¼	58¾	45½	58½	42¾	58⅛	42	60	42½	57	1.25	1.55
1905	50¾	65	42	65	44½	59½	42	64½	44¾	59	41½	58½	1.25	1.55
1906	47	61½	45⅝	58	42	55½	39	54¾	43	55	39½	54¼	......	......
1907	49½	78	47	74¼	43	71	39¾	66½	43	69½	39	66	1.25	1.60
1908	61	76	59⅜	83½	54½	83½	56½	82	53½	83	54¼	81½	1.60	1.90
1909	66¼	85½	63½	82	57	78	58¼	77	59	79	58	77	1.72½	1.95
1910	(2)	(2)	50	70½	46	69½	45½	68	46½	68¼	44	68	1.40	1.85
1911	(2)	(2)	48⅞	79	45½	77½	45½	76	45¾	76	43½	77	1.31¼	1.80
1912	54½	70	52	87	47	87	47½	83	48	83½	45	85	1.50	1.97½
1913	54½	88¼	52⅛	68	48	81	46½	78¼	48	78½	45	82	1.45	1.87
1914	60	93¾	66¼	89	63½	88½	60	86	62	88	62⅜	87	1.61	1.93
1915.														
January	77½	86⅛	74	81¾	70	78½	68½	77	70	77½	69	77	1.82½	1.85
February	80¼	88⅝	72	83½	70	81	68½	78	70½	79	68½	78	1.82½	1.90
March	82	89½	73	77½	71	77	70	75	70½	75	70	75½	1.85	1.87½
April	83½	90¼	75⅛	84¾	75	81	72	79	74	80	74½	78½	1.78	1.87½
May	82¼	88¾	76½	83½	77	80	50½	56	75½	80	73½	77⅛	1.76	1.80
June	78¼	86¾	76½	81	74½	79½	71¼	76½	73	78½	71½	76	1.72	1.77
July	86½	92¾	79	87	77	84	75¾	82	78	83½	73⅞	80⅝	1.73	1.77
August	86	92¾	86	86	77½	82	75¼	82¼	82	84	72½	81	1.74	1.78
September	75	88⅝	......	......	67	79	65¼	78	71	81½	68½	78	1.74	1.75
October	72⅜	78¼	......	......	63½	69	59¾	67	65	69	58¾	66	1.46	1.67
November	74½	80½	67½	71	62	69	61½	68½	64	69½	60	65	1.53	1.64
December	80	85½	70⅝	78	64½	69½	69½	75	66½	75	65	75½	1.62	1.80
Year	72⅜	92¾	67½	87	62	84	50½	82¼	64	84	58¾	80⅝	1.46	1.90

[1] No. 2 grade to 1912.

[2] Nominal.

Table 8.—*Corn: Condition of crop, United States, on first of months named, 1895–1915.*

Year.	July.	Aug.	Sept.	Oct.	Year.	July.	Aug.	Sept.	Oct.	Year.	July.	Aug.	Sept.	Oct.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1895	99.3	102.5	96.4	95.5	1902	87.5	86.5	84.3	79.6	1909	89.3	84.4	74.6	73.8
1896	92.4	96.0	91.0	90.5	1903	79.4	78.7	80.1	80.8	1910	85.4	79.3	78.2	80.3
1897	82.9	84.2	79.3	77.1	1904	86.4	87.3	84.6	83.9	1911	80.1	69.6	70.3	70.4
1898	90.5	87.0	84.1	82.0	1905	87.3	89.0	89.5	89.2	1912	81.5	80.0	82.1	82.2
1899	86.5	89.9	85.2	82.7	1906	87.5	88.0	90.2	90.1	1913	86.9	75.8	65.1	65.3
1900	89.5	87.5	80.6	78.2	1907	80.2	82.8	80.2	78.0	1914	85.8	74.8	71.7	72.9
1901	81.3	54.0	51.7	52.1	1908	82.8	82.5	79.4	77.8	1915	81.2	79.5	78.8	79.7

CORN—Continued.

TABLE 9.—*Corn: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	66.2	69.6	76.6	78.2	81.5	85.1	63.3	62.4	58.5	60.9	75.1	81.8	74.1	81.6
February	72.8	68.3	81.2	74.6	85.8	86.1	69.9	60.6	67.1	59.0	79.4	81.1	78.1	81.8
March	75.1	69.1	84.6	73.8	92.4	88.6	70.1	61.2	67.0	58.8	86.9	83.1	82.2	76.1
April	75.1	70.7	84.5	75.2	92.2	89.6	70.3	62.8	66.1	61.3	88.2	83.6	87.1	77.2
May	77.7	72.1	85.3	76.7	94.3	91.1	73.7	64.4	68.8	62.3	90.0	85.3	82.9	80.5
June	77.9	75.0	85.8	78.3	95.8	93.2	73.5	67.5	68.6	65.1	91.0	88.6	82.3	81.4
July	77.7	75.5	84.8	80.5	96.4	94.0	73.2	68.8	68.8	65.2	90.3	88.7	77.9	81.8
August	78.9	76.8	86.9	80.8	96.8	94.0	76.0	71.9	71.5	65.6	86.5	89.7	80.5	79.3
September	77.3	81.5	87.6	90.8	95.5	98.6	75.3	78.1	70.9	72.3	81.8	88.7	75.1	80.9
October	70.5	78.2	84.5	89.3	89.2	96.5	70.3	74.6	64.9	68.9	69.6	85.2	71.2	80.4
November	61.9	70.6	76.5	80.0	79.4	89.0	61.7	67.1	57.8	61.6	58.9	76.9	65.7	80.3
December	57.5	64.4	73.7	76.6	75.1	82.9	55.3	61.2	52.0	55.9	58.2	71.5	67.1	70.4
Average	71.4	71.7	82.4	79.1	89.2	90.6	69.1	65.3	64.3	62.2	74.9	81.4	76.8	79.1

TABLE 10.—*Corn (including meal): International trade, calendar years 1912–1914.*

[The item *maicena* or *maizena* is included as "Corn and corn meal."]

GENERAL NOTE.—Substantially the international trade of the world. It should not be expected that the world export and import totals for any year will agree. Among sources of disagreement are these: (1) Different periods of time covered in the "year" of the various countries; (2) Imports received in year subsequent to year of export; (3) want of uniformity in classification of goods among countries; (4) different practices and varying degrees of failure in recording countries of origin and ultimate destination; (5) different practices of recording reexported goods; (6) opposite methods of treating free ports; (7) clerical errors, which, it may be assumed, are not infrequent.

The exports given are domestic exports, and the imports given are imports for consumption as far as it is feasible and consistent so to express the facts. While there are some inevitable omissions, on the other hand there are some duplications because of reshipments that do not appear as such in official reports. For the United Kingdom, import figures refer to imports for consumption, when available, otherwise total imports, less exports, of "foreign and colonial merchandise." Figures for the United States include Alaska, Porto Rico, and Hawaii.

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Bushels.	*Bushels.*	*Bushels.*		*Bushels.*	*Bushels.*	*Bushels.*
Argentina	190,353	189,240	139,461	Russia	30,289	22,900	11,251
Austria-Hungary	38	30	....	Serbia [1]	4,627	4,627	....
Belgium	10,999	6,134	....	United States	32,627	46,923	17,022
British South Africa	3,756	741	4,778	Uruguay	14	14	3
Bulgaria	11,362	11,362	....	Other countries	6,538	7,225	....
Netherlands	13,557	11,846	4,337				
Roumania	42,725	42,725	....	Total	346,885	343,767	....

IMPORTS.

Austria-Hungary	29,108	25,844	....	Netherlands	38,262	39,467	25,512
Belgium	32,021	25,036	....	Norway	1,471	1,149	1,609
British South Africa	114	818	6	Portugal	952	4,114	....
Canada	9,331	9,041	8,347	Russia	279	662	413
Cuba	2,890	3,198	2,890	Spain	6,851	22,403	7,960
Denmark	13,809	15,938	10,346	Sweden	3,975	2,395	2,173
Egypt	110	1,184	687	Switzerland	4,342	4,785	3,068
France	23,951	23,279	16,321	United Kingdom	88,166	97,721	75,499
Germany	44,973	36,165	....	Other countries	5,668	9,422	....
Italy	21,294	13,847	3,308				
Mexico	1,548	1,548	....	Total	329,115	338,016	....

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[1] Data for 1911.

WHEAT.

TABLE 11.—*Wheat: Area and production of undermentioned countries, 1913–1915.*

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	50,184,000	53,541,000	59,898,000	763,380,000	891,017,000	1,011,505,000
Canada:						
New Brunswick	13,000	13,000	14,000	269,000	234,000	301,000
Ontario	850,000	834,000	1,093,000	19,851,000	17,658,000	28,797,000
Manitoba	2,804,000	2,616,000	3,342,000	53,331,000	38,605,000	84,282,000
Saskatchewan	5,720,000	5,348,000	6,838,000	121,559,000	73,494,000	171,146,000
Alberta	1,512,000	1,371,000	1,564,000	34,372,000	28,859,000	48,772,000
Other	117,000	111,000	135,000	2,335,000	2,430,000	2,960,000
Total Canada	11,016,000	10,293,000	12,986,000	231,717,000	161,280,000	336,258,000
Mexico	(1)	1,478,000	(1)	4,000,000	4,389,000	4,000,000
Total				999,097,000	1,056,686,000	1,351,763,000
SOUTH AMERICA.						
Argentina	17,096,000	16,243,000	15,471,000	187,391,000	113,904,000	178,221,000
Chile	1,103,000	1,018,000	1,278,000	23,575,000	16,403,000	19,002,000
Uruguay	816,000	911,000	778,000	5,461,000	5,887,000	3,417,000
Total	19,015,000	18,172,000	17,527,000	216,427,000	136,194,000	200,640,000
EUROPE.						
Austria-Hungary:						
Austria	2,997,000	(1)	(1)	60,109,000	55,000,000	60,000,000
Hungary proper	7,700,000	8,016,000	8,288,000	151,348,000	105,237,000	152,934,000
Croatia-Slavonia	837,000	741,000	(1)	16,899,000	7,716,000	15,000,000
Bosnia-Herzegovina	320,000	(1)	(1)	3,837,000	2,500,000	3,000,000
Total Austria-Hungary	11,854,000			232,193,000	170,453,000	230,934,000
Belgium	394,000	400,000	(1)	14,769,000	13,973,000	8,000,000
Bulgaria	2,907,000	2,986,000	(1)	51,256,000	29,654,000	46,212,000
Denmark	[2] 134,000	(1)	164,000	6,092,000	5,785,000	7,975,000
Finland	(1)	(1)	(1)	130,000	130,000	130,000
France	16,166,000	14,975,000	14,743,000	321,000,000	282,689,000	258,102,000
Germany	4,878,000	4,932,000	(1)	171,075,000	145,944,000	160,000,000
Greece	(1)	(1)	(1)	7,000,000	7,000,000	6,000,000
Italy	11,842,000	11,783,000	12,502,000	214,405,000	169,442,000	170,541,000
Montenegro	(1)	(1)	(1)	200,000	200,000	200,000
Netherlands	142,000	148,000	160,000	5,164,000	5,779,000	6,143,000
Norway	[2] 12,000	(1)	(1)	325,000	269,000	269,000
Portugal	1,208,000	(1)	(1)	9,186,000	10,000,000	6,571,000
Roumania	4,011,000	5,218,000	4,705,000	83,236,000	49,270,000	89,241,000
Russia:						
Russia proper	50,506,000			656,324,000		
Poland	1,312,000			24,011,000		
Northern Caucasia	10,251,000			157,642,000		
Total Russia, European	62,069,000	[3] 75,902,000	[3] 73,327,000	837,977,000	[4] 746,873,000	[4] 833,965,000
Serbia	573,000	(1)		10,524,000	9,000,000	10,000,000
Spain	9,644,000	9,681,000	10,037,000	112,401,000	116,089,000	139,298,000
Sweden	288,000	269,000	(1)	9,330,000	8,472,000	9,000,000
Switzerland	103,000	113,000	(1)	3,546,000	3,277,000	3,880,000
Turkey (European)	(1)	(1)	(1)	18,000,000	18,000,000	18,000,000
United Kingdom:						
England	1,663,000	1,770,000	2,122,000	53,736,000	59,217,000	68,652,000
Wales	38,000	37,000	49,000	1,075,000	1,082,000	1,415,000
Scotland	55,000	61,000	77,000	2,335,000	2,642,000	3,053,000
Ireland	34,000	37,000	87,000	1,295,000	1,415,000	3,238,000
Total United Kingdom	1,790,000	1,905,000	2,335,000	58,441,000	64,356,000	76,358,000
Total				2,166,850,000	1,856,655,000	2,080,819,000

[1] No official statistics

[2] Census of 1910.

[3] 63 governments of European and 10 of Asiatic Russia.

[4] 51 governments of European and 10 of Asiatic Russia.

WHEAT—Continued.

TABLE 11.—*Wheat: Area and production of undermentioned countries, 1913–1915*—Contd.

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
ASIA.						
India:	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
British[1]	29,524,000	28,475,000	32,230,000	362,693,000	312,032,000	383,376,000
Native States	4,392,000	(2)	(2)	(2)	(2)	(2)
Total	33,916,000					
Cyprus	(2)	(2)	(2)	2,779,000	2,500,000	2,000,000
Japanese Empire:						
Japan	1,185,000	1,174,000	1,176,000	26,757,000	22,975,000	23,669,000
Formosa	14,000	16,000	(1)	164,000	195,000	200,000
Total	1,199,000	1,190,000		26,921,000	23,170,000	23,869,000
Persia	(2)	(2)	(2)	16,000,000	14,000,000	16,000,000
Russia:						
Central Asia (4 governments)	4,854,000			39,216,000		
Siberia (4 governments)	7,497,000			75,297,000		
Transcaucasia (1 government)	9,000			115,000		
Total	12,360,000	(3)	(3)	114,628,000	(3)	(3)
Turkey (Asia Minor only)	(2)	(2)	(2)	35,000,000	35,000,000	35,000,000
Total				558,021,000	386,702,000	460,245,000
AFRICA.						
Algeria	3,448,000	3,368,000	3,209,000	36,848,000	30,000,000	34,654,000
Egypt	1,355,000	1,301,000	1,582,000	38,426,000	32,831,000	39,148,000
Tunis	1,235,000	1,010,000	1,112,000	5,511,000	2,205,000	11,023,000
Union of South Africa	(2)	(2)	(2)	[4] 6,034,000	[4] 6,034,000	[4] 6,034,000
Total				86,819,000	71,070,000	90,859,000
AUSTRALASIA.						
Australia:						
Queensland	125,000	132,000	127,000	2,038,000	1,825,000	1,635,000
New South Wales	2,231,000	3,205,000	3,429,000	33,511,000	39,219,000	13,187,000
Victoria	2,085,000	2,566,000	2,863,000	27,050,000	33,974,000	4,065,000
South Australia	2,080,000	2,268,000	2,503,000	22,174,000	17,470,000	3,639,000
Western Australia	793,000	1,097,000	1,375,000	9,457,000	13,751,000	2,704,000
Tasmania	25,000	18,000	24,000	650,000	361,000	396,000
Total Australia	7,339,000	9,286,000	10,321,000	94,880,000	106,600,000	25,626,000
New Zealand	190,000	167,000	230,000	5,343,000	5,559,000	6,854,000
Total Australasia	7,529,000	9,453,000	10,551,000	100,223,000	112,159,000	32,480,000
Grand total				4,127,437,000	3,619,466,000	4,216,806,000

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[1] Including certain Feudatory States.

[2] No official statistics.

[3] Included in total Russia (European).

[4] Census of 1911.

WHEAT—Continued.

TABLE 12.—*Wheat: Total production of countries mentioned in Table 11, 1891–1915.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bushels.		*Bushels.*		*Bushels.*		*Bushels.*
1891	2,432,322,000	1898	2,948,305,000	1905	3,327,084,000	1912	3,791,951,000
1892	2,481,805,000	1899	2,783,885,000	1906	3,434,354,000	1913	4,127,437,000
1893	2,559,174,000	1900	2.610,751,000	1907	3,133,965,000	1914	3,619,466,000
1894	2,660,557,000	1901	2,955,975,000	1908	3,182,105,000	1915	4,216,806,000
1895	2,593,312,000	1902	3,090,116,000	1909	3,581,519,000		
1896	2,506,320,000	1903	3,189,813,000	1910	3,575,055,000		
1897	2,236,268,000	1904	3,163,542,000	1911	3,551,795,000		

TABLE 13.—*Wheat: Average yield per acre of undermentioned countries, 1890–1914.*

Year.	United States.	Russia (European).[1]	Germany.[1]	Austria.[1]	Hungary proper.[1]	France.[2]	United Kingdom.[2]
Average:	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1890–1899	13.2	8.9	24.5	16.2	....	18.6	31.2
1900–1909	14.1	9.7	28.9	18.0	17.5	20.5	33.1
1905	14.5	10.0	28.5	19.6	18.7	20.9	33.9
1906	15.5	7.7	30.3	20.3	22.5	20.2	34.8
1907	14.0	8.0	29.6	18.0	14.9	23.2	35.1
1908	14.0	8.8	29.7	21.0	17.5	19.6	33.4
1909	15.4	12.5	30.5	19.9	14.1	22.0	35.0
1910	13.9	11.2	29.6	19.2	19.8	15.9	31.4
1911	12.5	7.0	30.6	19.6	20.9	19.8	34.0
1912	15.9	10.3	33.6	22.3	19.8	21.0	30.0
1913	15.2	13.5	35.1	19.9	19.6	19.9	32.7
1914	16.6	....	29.6	....	13.1	18.9	33.8
Average (1905–1914)	14.8	....	30.7	....	18.1	20.1	33.4

[1] Bushels of 60 pounds.

[2] Winchester bushels.

WHEAT—Continued.

TABLE 14.—*Wheat: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage harvested.	Average yield per acre.	Production.	Average farm price per bushel Dec.1.	Farm value Dec. 1.	Chicago cash price per bushel, No. 1 northern spring.				Domestic exports, including flour, fiscal year beginning July 1.	Per cent of crop exported.
						December.		Following May.			
						Low.	High.	Low.	High.		
	Acres.	*Bush.*	*Bushels.*	*Cents.*	*Dollars.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Bushels.*	*P. ct.*
1849..	....	......	*100,486,000*	......	....	......	......	......	......	7,535,901	7.5
1859..	....	......	*173,105,000*	......	....	......	......	......	......	17,213,133	9.9
1866..	15,424,000	9.9	152,000,000	152.7	232,110,000	129	145	185	211	12,646,941	8.3
1867..	18,322,000	11.6	212,441,000	145.2	308,387,000	126	140	134	161	26,323,014	12.4
1868..	18,460,000	12.1	224,037,000	108.5	243,033,000	80	88	87	96	29,717,201	13.3
1869..	19,181,000	13.6	260,147,000	76.5	199,025,000	63	76	79	92	53,900,780	20.7
1869..	....	......	*287,746,000*	......	....	......	......	......	......	....	......
1870..	18,993,000	12.4	235,885,000	94.4	222,767,000	91	98	113	120	52,574,111	22.3
1871..	19,944,000	11.6	230,722,000	114.5	264,076,000	107	111	120	143	38,995,755	16.9
1872..	20,858,000	12.0	249,997,000	111.4	278,522,000	97	108	112	122	52,014,715	20.8
1873..	22,172,000	12.7	281,255,000	106.9	300,670,000	96	106	105	114	91,510,398	32.5
1874..	24,967,000	12.3	308,103,000	86.3	265,881,000	78	83	78	94	72,912,817	23.7
1875..	26,382,000	11.1	292,136,000	89.5	261,397,000	82	91	89	100	74,750,682	25.6
1876..	27,627,000	10.5	289,356,000	97.0	280,743,000	104	117	130	172	57,043,936	19.7
1877..	26,278,000	13.9	364,194,000	105.7	385,089,000	103	108	98	113	92,141,626	25.3
1878..	32,109,000	13.1	420,122,000	77.6	325,814,000	81	84	91	102	150,502,506	35.8
1879..	32,546,000	13.8	448,757,000	110.8	497,030,000	122	133½	112½	119	180,304,181	40.2
1879..	*35,430,000*	*13.9*	*459,483,000*	......	....	......	......	......	......	....	......
1880..	37,987,000	13.1	498,550,000	95.1	474,202,000	93½	109¾	101	112⅝	186,321,514	37.4
1881..	37,709,000	10.2	383,280,000	119.2	456,880,000	124¾	129	123	140	121,892,389	31.8
1882..	37,067,000	13.6	504,185,000	88.4	445,602,000	91⅛	94¾	108	113⅜	147,811,316	29.3
1883..	36,456,000	11.6	421,086,000	91.1	383,649,000	94⅝	99¼	85	94¾	111,534,182	26.5
1884..	39,476,000	13.0	512,765,000	64.5	330,862,000	69½	76⅜	85⅜	90¾	132,570,366	25.9
1885..	34,189,000	10.4	357,112,000	77.1	275,320,000	82⅞	89	72⅛	79	94,565,793	26.5
1886..	36,806,000	12.4	457,218,000	68.7	314,226,000	75⅛	79½	80¾	88¾	153,804,969	33.6
1887..	37,642,000	12.1	456,329,000	68.1	310,613,000	75⅛	79¼	81¼	89⅞	119,625,344	26.2
1888..	37,336,000	11.1	415,868,000	92.6	385,248,000	96⅝	105½	77¼	95½	88,600,743	21.3
1889..	38,124,000	12.9	490,560,000	69.8	342,492,000	76¾	80½	89¾	100	109,430,467	22.3
1889..	*33,580,000*	13.9	*468,374,000*	......	....	......	......	......	......	....	......
1890..	36,087,000	11.1	399,262,000	83.8	334,774,000	87½	92¾	98⅞	108¼	106,181,316	26.6
1891..	39,917,000	15.3	611,781,000	83.9	513,473,000	89⅜	93¼	80	85¾	225,665,811	36.9
1892..	38,554,000	13.4	515,947,000	62.4	322,112,000	69½	73	68¼	76¼	191,912,635	37.2
1893..	34,629,000	11.4	396,132,000	53.8	213,171,000	59⅛	64½	52⅛	60½	164,283,129	41.5
1894..	34,882,000	13.2	460,267,000	49.1	225,902,000	52¾	63⅝	60¾	85⅜	144,812,718	31.5
1895..	34,047,000	13.7	467,103,000	50.9	237,939,000	53¾	64¾	57⅛	67⅝	126,443,968	27.1
1896..	34,619,000	12.4	427,684,000	72.6	310,598,000	74⅝	93⅛	68¾	97⅞	145,124,972	33.9
1897..	39,465,000	13.4	530,149,000	80.8	428,547,000	92	109	117	185	217,306,005	41.0
1898..	44,055,000	15.3	675,149,000	58.2	392,770,000	62¾	70	68⅜	79½	222,618,420	33.0
1899..	44,593,000	12.3	547,304,000	58.4	319,545,000	64	69½	63⅝	67½	186,096,762	34.0
1899..	*52,589,000*	*12.5*	*658,534,000*	......	....	......	......	......	......	....	......
1900..	42,495,000	12.3	522,230,000	61.9	323,515,000	69¼	74⅝	70	75⅛	215,990,073	41.4
1901..	49,896,000	15.0	748,460,000	62.4	467,360,000	73	79½	72⅜	76¼	234,772,516	31.4
1902..	46,202,000	14.5	670,063,000	63.0	422,224,000	71⅞	77¾	74¾	80⅝	202,905,598	30.3
1903..	49,465,000	12.9	637,822,000	69.5	443,025,000	77¾	87	87¾	101½	120,727,613	18.9
1904..	44,075,000	12.5	552,400,000	92.4	510,490,000	115	122	89½	113¾	44,112,910	8.0
1905..	47,854,000	14.5	692,979,000	74.8	518,373,000	82½	90	80¼	87¼	97,609,007	14.1
1906..	47,306,000	15.5	735,261,000	66.7	490,333,000	......	......	84	106	146,700,425	20.0
1907..	45,211,000	14.0	634,087,000	87.4	554,437,000	......	......	......	......	163,043,669	25.7
1908..	47,557,000	14.0	664,602,000	92.8	616,826,000	106½	112	126½	137	114,268,468	17.2
1909..	46,723,000	15.8	737,189,000	......	....	......	......	......	......	....	......
1909..	*44,261,000*	*15.4*	*683,366,000*	98.6	673,659,000	106	119¾	100	119¼	87,364,318	12.8
1910[1].	45,681,000	13.9	635,121,000	88.3	561,051,000	104	110	98	106	69,311,760	10.9
1911..	49,543,000	12.5	621,338,000	87.4	543,063,000	105	110	115	122	79,689,404	12.8
1912..	45,814,000	15.9	730,267,000	76.0	555,280,000	85	90¾	90½	96	142,879,596	19.6
1913..	50,184,000	15.2	763,380,000	79.9	610,122,000	89½	93	96	100	145,590,349	19.1
1914..	53,541,000	16.6	891,017,000	98.6	878,680,000	115	131	141	164½	332,464,975	37.3
1915..	59,898,000	16.9	1,011,505,000	92.0	930,302,000	106	128½	......	......	....	......

[1] Figures adjusted to census basis.

WHEAT—Continued.

TABLE 15.—*Winter and spring wheat: Acreage, production, and farm value Dec. 1, by States in 1915, and United States totals, 1890–1915.*

State and year.	Winter wheat.					Spring wheat.				
	Acreage.	Average yield per acre.	Production.	Average farm price Dec.1.	Farm value Dec. 1.	Acreage.	Average yield per acre.	Production.	Average farm price Dec.1.	Farm value Dec. 1.
	Acres.	*Bu.*	*Bushels.*	*Cts.*	*Dollars.*	*Acres.*	*Bu.*	*Bushels.*	*Cts.*	*Dollars.*
Me.						4,000	28.0	112,000	11.2	125,000
Vt.						1,000	30.0	30,000	10.7	32,000
N.Y.	390,000	25.0	9,750,000	10.1	9,848,000					
N.J.	78,000	20.0	1,560,000	10.6	1,654,000					
Pa.	1,330,000	18.5	24,605,000	10.4	25,589,000					
Del.	125,000	15.0	1,875,000	10.9	2,044,000					
Md.	638,000	16.1	10,272,000	10.5	10,786,000					
Va.	1,230,000	13.8	16,974,000	10.8	18,332,000					
W. Va.	300,000	15.0	4,500,000	10.8	4,860,000					
N.C.	950,000	10.9	10,355,000	12.0	12,426,000					
S. C.	225,000	10.8	2,430,000	13.8	3,353,000					
Ga.	325,000	11.0	3,575,000	12.9	4,612,000					
Ohio	1,980,000	20.3	40,194,000	10.4	41,802,000					
Ind.	2,750,000	17.2	47,300,000	10.2	48,246,000					
Ill.	2,800,000	19.0	53,200,000	10.0	53,200,000					
Mich.	960,000	21.3	20,448,000	10.1	20,652,000					
Wis.	100,000	23.0	2,300,000	9.5	2,185,000	105,000	22.5	2,362,000	9.5	2,244,000
Minn.	60,000	19.5	1,170,000	9.0	1,053,000	4,250,000	17.0	72,250,000	9.0	65,025,000
Iowa	510,000	21.5	10,965,000	8.7	9,540,000	275,000	16.7	4,592,000	8.7	3,995,000
Mo.	2,773,000	12.3	34,108,000	9.8	33,426,000					
N. Dak.						8,350,000	18.2	151,970,000	8.7	132,214,000
S. Dak.	125,000	20.5	2,562,000	8.6	2,203,000	3,600,000	17.0	61,200,000	8.6	52,632,000
Nebr.	3,601,000	18.5	66,618,000	8.4	55,959,000	346,000	16.0	5,536,000	8.4	4,650,000
Kans.	8,475,000	12.5	105,938,000	8.9	94,285,000	50,000	12.0	600,000	8.9	534,000
Ky.	900,000	11.0	9,900,000	10.5	10,395,000					
Tenn.	860,000	10.5	9,030,000	10.8	9,752,000					
Ala.	100,000	12.0	1,200,000	12.5	1,500,000					
Miss.	5,000	20.0	100,000	10.5	105,000					
Tex.	1,475,000	15.5	22,862,000	10.7	24,462,000					
Okla.	3,150,000	11.6	36,540,000	8.9	32,521,000					
Ark.	220,000	12.5	2,750,000	10.1	2,778,000					
Mont.	675,000	27.0	18,225,000	7.8	14,216,000	600,000	26.0	15,600,000	7.8	12,168,000
Wyo.	60,000	26.0	1,560,000	7.8	1,217,000	65,000	27.0	1,755,000	7.8	1,369,000
Colo.	310,000	26.0	8,060,000	8.0	6,448,000	250,000	21.0	5,250,000	8.0	4,200,000
N. Mex.	52,000	22.0	1,144,000	9.0	1,030,000	45,000	22.5	1,012,000	9.0	911,000
Ariz.	39,000	28.0	1,092,000	11.5	1,256,000					
Utah	245,000	25.0	6,125,000	8.6	5,268,000	75,000	28.0	2,100,000	8.6	1,806,000
Nev.	22,000	26.0	572,000	9.5	543,000	34,000	32.0	1,088,000	9.5	1,034,000
Idaho	390,000	29.0	11,310,000	8.0	9,048,000	280,000	26.5	7,420,000	8.0	5,936,000
Wash.	1,110,000	27.6	30,636,000	8.2	25,122,000	890,000	22.2	19,758,000	8.2	16,202,000
Oreg.	675,000	24.0	16,200,000	8.4	13,608,000	225,000	17.0	3,825,000	8.4	3,213,000
Cal.	440,000	16.0	7,040,000	9.5	6,688,000					
U.S.	40,453,000	16.2	655,045,000	95.0	622,012,000	19,445,000	18.3	356,460,000	86.5	308,290,000
1914	36,008,000	19.0	684,990,000	98.6	675,623,000	17,533,000	11.8	206,027,000	98.6	203,057,000
1913	31,699,000	16.5	523,561,000	82.9	433,995,000	18,485,000	13.0	239,819,000	73.4	176,127,000
1912	26,571,000	15.1	399,919,000	80.9	323,572,000	19,243,000	17.2	330,348,000	70.1	231,708,000
1911	29,162,000	14.8	430,656,000	88.0	379,151,000	20,381,000	9.4	190,682,000	86.0	163,912,000
1910	27,329,000	15.9	434,142,000	88.1	382,318,000	18,352,000	11.0	200,979,000	88.9	178,733,000
1909 [1]	*27,017,000*	*15.5*	*417,781,000*	102.4	427,872,000	*17,243,000*	*15.4*	*265,569,000*	92.6	245,787,000
1908	30,349,000	14.4	437,908,000	93.7	410,330,000	17,208,000	13.2	226,694,000	91,1	206,436,000
1907	28,132,000	14.6	409,442,000	88.2	361,217,000	17,079,000	13.2	224,645,000	86.0	193,220,000
1906	29,600,000	16.7	492,888,000	68.3	336,435,000	17,706,000	13.7	242,373,000	63.5	153,898,000
1905	29,864,000	14.3	428,462,000	78.2	334,987,000	17,990,000	14.7	264,517,000	69.3	183,386,000
1904	26,866,000	12.4	332,935,000	97.8	325,611,000	17,209,000	12.8	219,464,000	84.2	184,879,000
1903	32,511,000	12.3	399,867,000	71.6	286,243,000	16,954,000	14.0	237,955,000	65.9	156,782,000
1902	28,581,000	14.4	411,789,000	64.8	266,727,000	17,621,000	14.7	258,274,000	60.2	155,497,000
1901	30,240,000	15.2	458,835,000	66.1	303,227,000	19,656,000	14.7	289,626,000	56.7	164,133,000
1900	26,236,000	13.3	350,025,000	63.3	221,668,000	16,259,000	10.6	172,204,000	59.1	101,847,000
1899	25,358,000	11.5	291,706,000	63.0	183,767,000	19,235,000	13.3	255,598,000	53.1	135,778,000
1898	25,745,000	14.9	382,492,000	62.2	237,736,000	18,310,000	16.0	292,657,000	53.0	155,034,000
1897	22,926,000	14.1	323,616,000	85.1	275,323,000	16,539,000	12.5	206,533,000	74.2	153,224,000
1896	22,791,000	11.8	267,934,000	77.0	206,270,000	11,825,000	13.5	159,750,000	65.3	104,328,000
1895	22,609,000	11.6	261,242,000	57.8	150,944,000	11,438,000	18.0	205,861,000	42.3	86,995,000
1894	23,519,000	14.0	329,290,000	49.8	164,022,000	11,364,000	11.5	130,977,000	47.2	61,880,000
1893	23,118,000	12.0	278,469,000	56.3	156,720,000	11,511,000	10.2	117,662,000	48.0	56,451,000
1892	26,209,000	13.7	359,416,000	65.1	234,037,000	12,345,000	12.7	156,531,000	56.3	88,075,000
1891	27,524,000	14.7	405,116,000	88.0	356,415,000	12,393,000	16.7	206,665,000	76.0	157,058,000
1890	23,520,000	10.9	255,374,000	87.5	223,362,000	12,567,000	11.4	143,890,000	77.4	111,411,000

[1] Census acreage and production.

WHEAT—Continued.

TABLE 16.—*Winter and spring wheat: Yield per acre in States producing both, for ten years.*

WINTER WHEAT.

State.	Yield per acre (bushels).										
	10-yr. aver., 1906–1915	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Wisconsin	19.5	18.4	15.5	19.5	20.4	20.0	17.5	19.5	20.1	21.5	23.0
Minnesota	18.4	......	......	......	......	......	......	......	16.2	19.5	19.5
Iowa	21.4	22.3	18.5	21.0	21.6	21.2	19.7	23.0	23.4	21.6	21.5
South Dakota	14.5	......	......	......	......	......	......	......	9.0	14.0	20.5
Nebraska	18.4	23.2	19.0	17.8	19.4	16.5	13.8	18.0	18.6	19.3	18.5
Kansas	14.0	15.3	11.3	12.8	14.5	14.2	10.8	15.5	13.0	20.5	12.5
Montana	26.6	......	......	......	32.5	22.0	31.7	24.5	25.6	23.0	27.0
Wyoming	26.4	......	......	25.0	32.5	25.0	26.0	28.0	25.0	24.0	26.0
Colorado	23.9	......	......	......	29.7	23.0	18.0	24.5	21.1	25.0	26.0
New Mexico	21.8	......	......	......	......	20.0	25.0	20.0	18.6	25.0	22.0
Arizona	28.6	......	......	......	......	22.3	30.0	31.0	32.0	28.0	28.0
Utah	23.1	......	......	23.0	24.0	20.5	20.0	24.0	23.0	25.0	25.0
Nevada	25.2	......	......	......	24.0	24.0	23.0	27.5	23.0	29.0	26.0
Idaho	27.8	25.4	26.0	30.0	29.0	23.7	31.5	28.7	27.4	27.5	29.0
Washington	26.0	24.1	29.5	24.5	25.8	20.5	27.3	27.6	27.0	26.5	27.6
Oregon	23.2	22.3	25.5	23.2	21.0	23.7	22.2	26.8	21.4	22.0	24.0
United States	15.9	16.7	14.6	14.4	15.8	15.9	14.8	15.1	16.5	19.0	16.2

SPRING WHEAT.

State.	10-yr. aver., 1906–1915	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Wisconsin	17.6	15.7	13.5	17.5	19.0	18.7	14.5	18.5	18.6	17.0	22.5
Minnesota	13.9	10.9	13.0	12.8	16.8	16.0	10.1	15.5	16.2	10.5	17.0
Iowa	15.7	14.9	12.8	15.5	14.7	20.9	13.8	17.0	17.0	13.5	16.7
South Dakota	11.8	13.4	11.2	12.8	14.1	12.8	4.0	14.2	9.0	9.0	17.0
Nebraska	13.1	14.7	12.0	13.0	14.0	13.9	10.0	14.1	12.0	11.5	16.0
Kansas	9.7	11.4	5.8	5.5	11.5	8.4	4.2	15.0	8.5	15.0	12.0
Montana	24.1	24.0	28.8	24.2	28.8	22.0	25.2	23.5	21.5	17.0	26.0
Wyoming	26.4	28.7	28.5	25.5	27.0	25.0	26.0	29.2	25.0	22.0	27.0
Colorado	24.2	32.5	29.0	21.0	29.4	21.9	19.5	24.0	21.0	22.5	21.0
New Mexico	22.6	25.0	24.0	25.0	24.5	20.0	20.5	22.0	19.0	23.0	22.5
Arizona	25.0	25.2	25.9	26.7	25.0	22.3	25.0	28.0	24.5	23.0	24.0
Utah	27.5	27.4	28.8	27.5	28.5	25.3	27.0	29.2	28.0	25.0	28.0
Nevada	30.7	31.5	32.0	30.0	28.7	29.0	32.5	30.2	31.0	30.0	32.0
Idaho	25.6	23.5	24.5	25.4	26.0	20.4	29.0	28.3	28.0	24.0	26.5
Washington	19.5	19.6	24.5	15.0	20.6	14.5	19.5	20.4	19.0	20.0	22.2
Oregon	18.2	17.5	21.5	16.5	18.7	18.0	17.7	19.5	19.5	16.5	17.0
United States	13.7	13.7	13.2	13.2	15.8	11.0	9.4	17.2	13.0	11.8	18.3

TABLE 17.—*Wheat: Acreage, production, and total farm value, by States, 1914 and 1915.*

State.	Thousands of acres.		Production (thousands of bushels).		Total value, basis Dec. 1 price (thousands of dollars).	
	1915	1914	1915	1914	1915	1914
Maine	4	3	112	81	125	88
Vermont	1	1	30	29	32	29
New York	390	360	9,750	8,100	9,848	8,748
New Jersey	78	79	1,560	1,422	1,654	1,550
Pennsylvania	1,330	1,312	24,605	23,747	25,589	24,697
Delaware	125	114	1,875	2,337	2,044	2,547
Maryland	638	612	10,272	13,158	10,786	13,947
Virginia	1,230	779	16,974	11,296	18,332	12,200
West Virginia	300	236	4,500	3,540	4,860	3,823
North Carolina	950	611	10,355	7,332	12,426	8,578

WHEAT—Continued.

TABLE 17.—*Wheat: Acreage, production, and total farm value, by States, 1914 and 1915*—Continued.

State.	Thousands of acres.		Production (thousands of bushels).		Total value, basis Dec. 1 price (thousands of dollars).	
	1915	1914	1915	1914	1915	1914
South Carolina	225	80	2,430	920	3,353	1,334
Georgia	325	140	3,575	1,694	4,612	2,270
Ohio	1,980	1,975	40,194	36,538	41,802	38,365
Indiana	2,750	2,485	47,300	43,239	48,246	44,536
Illinois	2,800	2,500	53,200	46,250	53,200	46,712
Michigan	960	879	20,448	17,316	20,652	17,835
Wisconsin	205	184	4,662	3,511	4,429	3,511
Minnesota	4,310	4,050	73,420	42,975	66,078	43,834
Iowa	785	810	15,557	15,066	13,535	14,463
Missouri	2,773	2,549	34,108	43,333	33,426	42,466
North Dakota	8,350	7,285	151,970	81,592	132,214	82,408
South Dakota	3,725	3,469	63,762	31,566	54,835	29,672
Nebraska	3,947	3,668	72,154	68,116	60,609	64,710
Kansas	8,525	8,660	106,538	177,200	94,819	168,340
Kentucky	900	760	9,900	12,540	10,395	12,916
Tennessee	860	720	9,030	11,160	9,752	11,718
Alabama	100	31	1,200	403	1,500	508
Mississippi	5	1	100	13	105	16
Texas	1,475	1,082	22,862	14,066	24,462	13,925
Oklahoma	3,150	2,525	36,540	47,975	32,521	44,137
Arkansas	220	125	2,750	1,625	2,778	1,609
Montana	1,275	910	33,825	18,356	26,384	16,704
Wyoming	125	100	3,315	2,290	2,586	2,038
Colorado	560	475	13,310	11,312	10,648	9,842
New Mexico	97	76	2,156	1,838	1,941	1,654
Arizona	39	31	1,092	868	1,256	1,085
Utah	320	291	8,225	7,275	7,074	6,256
Nevada	56	45	1,660	1,332	1,577	1,266
Idaho	670	549	18,730	14,362	14,984	12,495
Washington	2,000	1,780	50,394	41,840	41,324	41,840
Oregon	900	799	20,025	16,604	16,821	16,936
California	440	400	7,040	6,800	6,688	7,072
United States	59,898	53,541	1,011,505	891,017	930,302	878,680

TABLE 18.—*Wheat: Production and distribution in the United States, 1897–1915.*

[000 omitted.]

Year.	Old stock on farms July 1.	Crop.	Total supplies.	Stock on farms Mar. 1 following.	Shipped out of county where grown.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1897	23,347	530,149	553,496	121,320	269,126
1898	17,839	675,149	692,988	198,056	398,882
1899	64,061	547,304	611,365	158,746	305,020
1900	50,900	522,230	573,130	128,098	281,372
1901	30,552	748,460	779,012	173,353	372,717
1902	52,437	670,063	722,500	164,047	388,554
1903	42,540	637,822	680,362	132,608	369,582
1904	36,634	552,400	589,034	111,055	302,771
1905	24,257	692,979	717,236	158,403	404,092
1906	46,053	735,261	781,314	206,642	427,253
1907	54,853	634,087	688,940	148,721	367,607
1908	33,797	664,602	698,399	143,692	393,435
1909	15,062	683,335	698,397	160,214	417,464
1910	35,929	635,121	671,050	162,705	352,906
1911	34,071	621,338	655,409	122,025	348,821
1912	23,876	730,267	754,143	156,483	449,906
1913	35,515	763,380	798,895	151,809	411,753
1914	32,236	891,017	923,253	152,903	541,198
1915	28,972	1,011,505	1,040,477	....	....

WHEAT—Continued.

TABLE 19.—*Wheat: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
Me.	25.5	24.8	26.2	23.5	25.5	29.7	21.0	23.5	25.5	27.0	28.0	105	110	103	101	109	112	26.56	31.36
Vt.	25.9	22.3	23.0	23.0	25.0	29.3	27.8	25.0	24.5	29.0	30.0	101	99	98	100	100	107	27.14	32.10
N. Y.	20.2	20.0	17.3	17.5	21.0	23.7	19.5	16.0	20.0	22.5	25.0	98	95	99	93	108	101	20.00	25.25
N. J.	18.2	18.3	18.5	17.3	17.9	18.5	17.4	18.5	17.6	18.0	20.0	99	96	98	96	109	106	17.90	21.20
Pa.	17.5	17.7	18.6	18.5	17.0	17.8	13.5	18.0	17.0	18.1	18.5	96	92	95	91	104	104	16.04	19.24
Del.	16.7	16.0	20.5	15.0	14.0	17.0	16.7	17.5	14.5	20.5	15.0	95	90	96	88	109	109	16.45	16.35
Md.	16.5	16.0	19.0	16.4	14.5	17.4	15.5	15.0	13.3	21.5	16.1	95	91	95	89	106	105	15.80	16.90
Va.	12.6	12.5	12.5	11.4	11.2	12.8	12.0	11.6	13.6	14.5	13.8	100	96	101	96	108	108	12.88	14.90
W. Va.	13.2	12.7	12.2	13.0	13.0	12.5	11.5	14.5	13.0	15.0	15.0	102	102	101	100	108	108	13.66	16.20
N. C.	10.4	9.1	9.5	10.0	9.5	11.4	10.6	8.9	11.7	12.0	10.9	110	102	111	106	117	120	11.93	13.08
S. C.	10.3	9.3	8.5	9.0	10.0	11.0	11.4	9.2	12.3	11.5	10.8	129	123	119	130	145	138	14.30	14.90
Ga.	10.5	10.0	9.0	9.2	10.0	10.5	12.0	9.3	12.2	12.1	11.0	123	114	122	120	134	129	13.91	14.19
Ohio.	16.6	20.4	16.3	16.0	15.9	16.2	16.0	8.0	18.0	18.5	20.3	95	91	98	90	105	104	14.52	21.11
Ind.	15.8	20.7	14.4	16.6	15.3	15.6	14.7	8.0	18.5	17.4	17.2	93	89	93	88	103	102	13.66	17.54
Ill.	16.3	19.5	18.0	13.0	17.4	15.0	16.0	8.3	18.7	18.5	19.0	91	89	88	86	101	100	13.90	19.00
Mich.	16.7	13.1	14.5	18.0	18.8	18.0	18.0	10.0	15.3	19.7	21.3	94	88	96	89	103	101	15.07	21.51
Wis.	18.3	16.3	14.1	18.2	19.5	19.3	15.9	19.0	19.3	19.1	22.7	89	90	83	82	100	95	16.55	21.56
Minn.	13.9	10.9	13.0	12.8	16.8	16.0	10.1	15.5	16.2	10.6	17.0	87	92	73	76	102	90	11.75	15.30
Iowa.	18.0	15.7	13.4	17.2	17.0	21.0	16.4	19.8	20.6	18.6	19.8	84	88	78	76	96	87	16.25	17.23
Mo.	14.1	14.8	13.2	10.0	14.7	13.8	15.7	12.5	17.1	17.0	12.3	89	88	90	84	98	98	13.62	12.05
N. Dak.	11.9	13.0	10.0	11.6	13.7	5.0	8.0	18.0	10.5	11.2	18.2	84	89	69	73	101	87	8.60	15.83
S. Dak.	11.8	13.4	11.2	12.8	14.1	12.8	4.0	14.2	9.0	9.1	17.1	83	91	69	71	94	86	7.95	14.71
Nebr.	17.8	22.0	18.1	17.2	18.8	16.2	13.4	17.6	17.9	18.6	18.3	80	87	69	71	95	84	13.43	15.37
Kans.	13.9	15.1	11.0	12.6	14.4	14.1	10.7	15.5	13.0	20.5	12.5	84	91	74	79	95	89	12.76	11.12
Ky.	12.6	14.1	12.0	11.6	11.8	12.8	12.7	10.0	13.6	16.5	11.0	96	92	99	96	103	105	12.71	11.55
Tenn.	11.4	12.5	9.5	10.0	10.4	11.7	11.5	10.5	12.0	15.5	10.5	99	96	100	98	105	108	12.21	11.34
Ala.	11.4	11.0	10.0	11.5	10.5	12.0	11.5	10.6	11.7	13.0	12.0	115	120	113	115	126	125	13.84	15.00
Miss.	13.2	10.0	11.0	14.5	11.0	14.0	12.0	12.0	14.0	13.0	20.0	104	100	97	95	125	105	13.89	21.00
Tex.	12.4	11.5	7.4	11.0	9.1	15.0	9.4	15.0	17.5	13.0	15.5	98	100	93	94	99	107	13.47	16.58
Okla.	12.5	13.7	9.0	11.6	12.8	16.3	8.0	12.8	10.0	19.0	11.6	84	92	75	82	92	89	11.36	10.32
Ark.	11.5	10.8	9.5	10.0	11.4	13.9	10.5	10.0	13.0	13.0	12.5	94	90	94	90	99	101	11.30	12.62
Mont.	25.3	24.0	28.8	24.2	30.8	22.0	28.7	24.1	23.8	20.2	26.5	78	77	64	66	91	78	18.11	20.67
Wyo.	26.5	28.7	28.5	25.4	28.7	25.0	26.0	28.7	25.0	22.9	26.5	84	94	80	72	89	78	21.91	20.67
Colo.	24.6	32.5	29.0	21.0	29.5	22.3	18.9	24.2	21.0	23.8	23.8	81	84	73	78	87	80	17.79	19.04
N. Mex.	22.8	25.0	24.0	25.0	24.5	20.0	22.9	20.9	18.8	24.2	22.2	95	100	90	97	90	90	20.35	19.98
Ariz.	27.3	25.2	25.9	26.7	25.0	22.3	29.6	30.7	32.0	28.0	28.0	114	95	110	110	125	115	31.77	32.20
Utah.	25.4	27.4	28.8	26.5	25.9	22.1	22.3	25.7	24.2	25.0	25.7	79	70	75	73	86	86	18.52	22.10
Nev.	29.3	31.5	32.0	30.0	28.7	26.5	28.3	29.2	27.7	29.6	29.6	98	95	100	82	95	95	27.16	28.12
Idaho.	26.9	24.4	25.3	28.2	27.8	22.6	30.7	28.6	27.6	26.2	28.0	72	66	66	63	87	80	19.12	22.40
Wash.	22.4	20.8	26.0	18.8	23.2	16.9	22.7	23.5	23.2	23.5	25.2	78	71	68	73	100	82	17.14	20.66
Oreg.	21.6	20.0	23.4	20.8	20.2	22.1	21.0	25.0	21.0	20.8	22.2	81	75	72	75	102	84	17.86	18.65
Cal.	16.1	17.1	15.0	14.6	14.0	18.0	18.0	17.0	14.0	17.0	16.0	96	88	93	95	104	95	15.91	15.20
U. S.	15.0	15.5	14.0	14.0	15.8	13.9	12.5	15.9	15.2	16.6	16.9	86.8	87.4	76.0	79.9	98.6	92.0	12.79	15.53

[1] Based upon farm price Dec. 1.

WHEAT—Continued.

TABLE 20.—*Winter and spring wheat: Condition of crop, United States, on first of months named, 1890–1916.*

Year.	Winter wheat.					Spring wheat.			
	December of previous year.	April.	May.	June.	When harvested.	June.	July.	August.	When harvested.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1890	95.3	81.0	80.0	78.1	76.2	91.3	94.4	83.2	79.7
1891	98.4	96.9	97.9	96.6	96.2	92.6	94.1	95.5	97.2
1892	85.3	81.2	84.0	88.3	89.6	92.3	90.9	87.3	81.2
1893	87.4	77.4	75.4	75.5	77.7	86.4	74.1	67.0	68.9
1894	91.5	86.7	81.4	83.2	83.9	88.0	68.4	67.1	69.9
1895	89.0	81.4	82.9	71.1	65.8	97.8	102.2	95.9	94.9
1896	81.4	77.1	82.7	77.9	75.6	99.9	93.3	78.9	73.8
1897	99.5	81.4	80.2	78.5	81.2	89.6	91.2	86.7	80.8
1898	....	86.7	86.5	90.8	85.7	100.9	95.0	96.5	91.7
1899	92.6	77.9	76.2	67.3	65.6	91.4	91.7	83.6	77.2
1900	97.1	82.1	88.9	82.7	80.8	87.3	55.2	56.4	56.1
1901	97.1	91.7	94.1	87.8	88.3	92.0	95.6	80.3	78.4
1902	86.7	78.7	76.4	76.1	77.0	95.4	92.4	89.7	87.2
1903	99.7	97.3	92.6	82.2	78.8	95.9	82.5	77.1	78.1
1904	86.6	76.5	76.5	77.7	78.7	93.4	93.7	87.5	66.2
1905	82.9	91.6	92.5	85.5	82.7	93.7	91.0	89.2	87.3
1906	94.1	89.1	90.9	82.7	85.6	93.4	91.4	86.9	83.4
1907	94.1	89.9	82.9	77.4	78.3	88.7	87.2	79.4	77.1
1908	91.1	91.3	89.0	86.0	80.6	95.0	89.4	80.7	77.6
1909	85.3	82.2	83.5	80.7	82.4	95.2	92.7	91.6	88.6
1910	95.8	80.8	82.1	80.0	81.5	92.8	61.6	61.0	63.1
1911	82.5	83.3	86.1	80.4	76.8	94.6	73.8	59.8	56.7
1912	86.6	80.6	79.7	74.3	73.3	95.8	89.3	90.4	90.8
1913	93.2	91.6	91.9	83.5	81.6	93.5	73.8	74.1	75.3
1914	97.2	95.6	95.9	92.7	94.1	95.5	92.1	75.5	68.0
1915	88.3	88.8	92.9	85.8	84.4	94.9	93.3	93.4	94.6
1916	87.7	....	....	....	....	....	....	....	....

TABLE 21.—*Winter wheat: Per cent of area sown which was abandoned (not harvested).*

Year.	Per cent.	Year.	Per cent.	Year.	Per cent.
1901	6.7	1906	5.5	1911	10.7
1902	15.2	1907	11.2	1912	20.1
1903	2.8	1908	4.2	1913	4.7
1904	15.4	1909	7.5	1914	3.1
1905	4.6	1910	13.7	1915	2.7

WHEAT—Continued.

TABLE 22.—*Wheat: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	107.8	81.0	112.1	93.3	117.2	98.8	113.4	89.6	106.5	76.5	107.9	89.7	101.4	74.5
February	129.9	81.6	135.5	92.8	139.3	99.9	135.7	90.1	129.5	77.1	129.0	90.7	120.8	74.9
March	133.6	83.1	142.8	95.4	146.0	102.6	138.6	89.9	132.4	79.8	134.9	90.0	124.8	75.0
April	131.7	84.2	138.2	95.5	144.9	103.3	137.7	90.4	130.5	80.4	133.9	91.7	121.3	78.4
May	139.6	83.9	145.2	96.9	148.5	103.2	142.9	89.4	142.0	80.0	138.9	91.6	122.5	78.9
June	131.5	84.4	140.2	97.3	141.5	103.0	135.9	90.6	133.1	81.4	131.9	90.7	114.5	76.6
July	102.8	76.9	112.6	93.7	115.7	96.8	105.0	78.3	104.9	74.1	96.6	74.2	89.5	76.0
August	106.5	76.5	107.6	85.8	110.2	90.9	101.7	78.4	112.2	75.2	104.1	74.2	90.9	73.1
September	95.0	93.3	102.8	101.5	108.8	105.1	96.7	98.7	93.8	94.1	101.5	91.0	86.1	81.1
October	90.9	93.5	100.4	104.3	107.5	108.9	98.6	99.7	88.1	91.7	98.8	96.7	78.1	85.0
November	93.1	97.2	101.3	104.2	111.4	111.2	102.1	102.2	89.4	95.6	100.0	98.9	83.3	91.0
December	92.0	98.6	103.3	105.2	112.9	111.0	101.5	102.8	88.0	97.0	98.9	96.6	82.2	95.4
Average	105.0	88.6	112.0	99.7	118.4	102.5	109.9	91.9	104.7	86.7	106.7	85.9	89.4	84.2

TABLE 23.—*Wheat: Wholesale price per bushel, 1900–1915.*

Date.	New York.		Baltimore.		Chicago.		Detroit.		St. Louis.		Minneapolis.		San Francisco.	
	No. 2 red winter.		No. 2 red.		No. 1 northern spring.		No. 2 red.		No. 2 red winter.		No. 1 northern.		No. 1 California (per 100 lbs.).[1]	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Dolls.*	*Dolls.*
1900	72⅞	96⅞	70	90	61½	87½	66¾	91½	66¼	86½	62	90½	0.90	1.07
1901	72¾	89⅞	69¼	85¾	63⅛	79½	66½	90½	61¼	88½	60½	77½	.95	1.06¼
1902	73½	94¼	66¼	87½	67½	95	68½	93½	63	92½	66½	80⅜	1.05	1.45
1903	78¼	99⅞	76½	88¾	70¼	93	74¼	94	69¾	94	73⅛	100	1.32½	1.55
1904	92½	126¼	82	118½	81¼	122	92	123	89½	121	84¾	124½	1.23¾	1.50
1905	84⅜	125¾	73	119½	82½	124	80	124	82	120	75¼	124½	1.35	1.55
1906	77	97	68	91	71	87¼	72	93½	68⅛	99¼	69⅝	85⅜	......	......
1907	80	116¼	74	111¼	79	122	75	106½	74½	109½	76¾	119¾	1.22½	1.80½
1908	95¾	115	89	106⅜	102	124	89¾	107	89	110	98¾	125	1.55	1.77½
1909	106½	150½	99½	160	103	140	104¾	157	102	166	97¼	144½	1.65	2.15
1910	94¼	131	88¼	128	100	129½	91	127	92	135	99½	129¼	1.40	2.05
1911	90⅛	105½	87	100¼	93	117	83¼	100¾	85	108	91½	112⅜	1.35	1.55
1912	98¼	127	94½	116½	85	122	95¾	120	92½	125½	80½	118⅞	1.40	1.90
1913	94	114	89¼	109½	85	96	87½	116¼	83	115	80¾	95	1.55	1.82½
1914	86¼	136½	82¾	127	88½	133	80	127¾	75¾	127½	84⅝	129⅛	1.51¼	2.00
1915.														
January	138	162	132¼	151	128	154	128½	152	127½	152	125	149⅛	(²)	(²)
February	157	178	148½	164	146	167	148	165	145	164	140½	157½	2.25	2.40
March	149½	172¼	140¼	162¾	138	162½	136½	159½	136½	157¾	133⅜	156¾	2.25	2.30
April	159	169¾	155¼	168½	152½	165½	152½	161	149	160	138¾	165⅝	2.15	2.30
May	147	170	141½	163½	141	164½	139	160½	137	159½	146	165	1.95	2.20
June	126	141	111	140	123	149	114½	138	110	132	114⅞	144¾	1.65	2.00
July	118¾	144½	105½	114¼	132	153¾	110	132	108	128	127½	151½	1.65	1.85
August	110½	128¼	102	121½	108	131	106½	117½	107	120¾	96⅜	155	1.60	1.85
September	108¼	128	100¾	110½	99½	119½	106	114	106	122	89	104⅞	1.40	1.65
October	118	130	106	116	99	115½	107	115	109	129	92¾	109½	1.40	1.75
November	Nom.	Nom.	110½	114¼	102½	111	111	114	111	125	98⅜	105¾	1.50	1.70
December	Nom.	Nom.	113¼	128⅞	106	128½	113½	126	115	129	103⅜	123⅜	1.50	1.70
Year	108¼	178	100¾	168½	99	167	106	165	106	164	89	165⅝	1.40	2.40

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[1] Northern Club, in 1913. White, subsequent to 1913.

[2] Nominal.

WHEAT—Continued.

TABLE 24.—*Wheat flour: Wholesale price per barrel, 1900–1915.*

Date.	Chicago.				Cincinnati.		New York.		St. Louis.	
	Winter patents.		Spring patents.		Winter family.		Spring patents.		Winter patents.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$3.40	$4.40	$3.00	$4.30	$2.35	$3.50	$3.25	$5.00	$3.35	$4.25
1901	3.30	3.90	3.25	3.80	2.20	3.25	3.30	4.25	3.30	4.10
1902	3.40	4.00	3.20	3.90	2.70	3.35	3.50	4.25	3.10	4.25
1903	3.40	4.20	3.30	4.60	2.65	3.55	3.55	5.00	3.35	4.40
1904	4.00	5.50	4.00	6.00	3.25	4.70	4.30	6.60	4.25	5.75
1905	3.85	5.20	3.75	5.70	3.10	4.70	4.25	6.35	4.05	5.60
1906	3.20	4.10	3.55	4.15	2.70	3.60	3.75	4.80	3.35	4.60
1907	3.10	5.10	2.70	5.75	2.70	4.30	3.80	6.00	3.50	5.00
1908	4.00	5.10	4.90	5.75	3.25	4.10	4.85	5.90	4.35	5.10
1909	4.65	6.75	5.35	7.00	3.95	5.85	4.80	6.85	4.60	7.00
1910	4.00	5.80	6.00	7.00	3.10	5.10	4.80	6.35	4.35	6.20
1911	3.60	5.40	5.10	6.55	2.60	3.70	4.45	5.75	3.90	5.25
1912	3.75	5.45	4.00	5.60	3.40	4.50	4.25	6.00	4.20	5.85
1913	3.90	4.90	4.00	5.60	2.90	4.15	4.40	5.00	3.70	5.15
1914	3.45	5.50	4.00	6.90	3.05	4.90	4.35	7.00	3.35	5.70
1915.										
January	6.10	7.10	6.60	7.60	4.75	6.15	6.25	7.40	5.50	6.75
February	7.00	8.00	7.20	8.00	6.25	6.65	7.25	8.25	6.60	7.50
March	6.60	7.50	7.10	8.00	6.00	6.55	6.85	7.85	6.30	6.85
April	7.10	8.30	6.80	7.50	6.15	6.55	7.25	8.10	6.40	6.90
May	....	....	....	....	6.00	6.55	7.35	8.10	6.35	6.90
June	....	....	....	....	5.25	5.90	5.50	7.90	5.10	6.30
July	....	....	....	....	5.25	5.65	5.50	7.25	4.90	5.90
August	....	....	....	....	5.50	5.65	5.15	7.25	4.60	5.10
September	....	....	....	....	5.00	5.65	4.90	6.85	4.60	5.00
October	....	....	....	....	4.65	5.15	5.05	6.10	4.80	5.40
November	....	....	....	....	4.65	4.75	5.40	5.90	5.00	5.25
December	....	....	....	....	4.65	5.25	5.60	6.70	5.10	5.60
Year	....	....	....	....	4.65	6.65	4.90	8.25	4.60	7.50

WHEAT—Continued.

TABLE 25.—*Wheat and flour: International trade, calendar years 1912–1914.*

[“Temporary” imports into Italy of wheat, to be used for manufacturing products for export, are included in the total imports as given in the official Italian returns. In the trade returns of Chile the item *trigo mote* (prepared corn) which might easily be confused with *trigo* (wheat) is omitted. See “General note,” p. 417.]

EXPORTS.

[000 omitted.]

Country.	Wheat.			Flour.			Wheat and flour.[1]		
	1912	1913	1914 (prelim.)	1912	1913	1914 (prelim.)	1912	1913	1914 (prelim.)
	Bushels.	*Bushels.*	*Bushels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Bushels.*	*Bushels.*	*Bushels.*
Argentina	96,600	103,328	36,028	1,480	1,402	757	103,260	109,637	39,435
Australia	32,604	42,923	52,878	1,739	2,285	1,778	40,428	53,207	60,878
Austria-Hungary	56	71	....	167	369	....	806	1,730	....
Belgium	16,576	12,991	....	732	646	....	19,870	15,898	....
British India	65,598	50,558	26,130	714	923	683	68,812	54,711	29,204
Bulgaria	9,238	9,238	....	493	493	....	11,456	11,456	....
Canada	84,958	129,950	70,302	4,303	4,894	4,671	104,320	151,975	91,322
Chile	2,411	1,922	149	74	69	34	2,743	2,235	301
Germany	11,853	19,781	....	1,924	2,191	....	20,510	29,638	....
Netherlands	51,444	63,598	37,433	157	201	115	52,152	64,501	37,952
Roumania	50,406	50,406	....	844	844	....	54,203	54,203	....
Russia	96,915	122,336	88,533	1,173	1,836	947	102,195	130,596	92,795
Serbia[2]	3,366	3,366	....	80	80	....	3,727	3,727	....
United States	61,655	99,509	173,862	10,622	12,278	12,768	109,451	154,760	231,318
Other countries	12,839	7,499	....	3,303	2,813	....	27,708	20,160	....
Total	596,519	717,476	....	27,805	31,324	....	721,641	858,434	....
IMPORTS.									
Belgium	71,167	69,628	....	21	36	....	71,261	69,790	....
Brazil	14,010	16,109	14,047	2,133	1,914	1,503	23,609	24,722	20,809
British South Africa	1,886	5,359	3,782	588	890	706	4,531	9,366	6,957
Denmark	5,885	5,176	2,942	580	670	552	8,496	8,190	5,424
France	26,131	57,160	60,882	126	113	1,047	26,698	57,669	65,595
Germany	84,415	93,547	....	179	201	....	85,218	94,451	....
Greece	5,901	6,882	....	16	15	....	5,974	6,950	....
Italy	65,760	66,532	37,327	34	23	17	65,914	66,635	37,404
Japan	2,276	6,255	....	191	195	....	3,135	7,131	....
Netherlands	65,788	79,369	51,366	2,051	2,259	1,598	75,018	89,534	58,556
Portugal	2,382	6,399	....	....	....	....	2,382	6,399	....
Spain	1,543	6,405	15,528	1	1	10	1,547	6,409	15,575
Sweden	6,285	7,355	4,432	74	97	102	6,619	7,793	4,892
Switzerland	17,843	19,446	16,200	494	429	....	20,066	21,376	....
United Kingdom	203,322	196,809	192,725	5,742	6,704	5,622	229,160	226,978	218,025
Other countries	11,109	13,074	....	11,497	13,060	....	62,847	71,843	....
Total	585,703	655,504	....	23,727	26,607	....	692,475	775,236	....

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[1] Flour is reduced to terms of grain, where included in these 3 columns, by assuming 1 barrel of flour to be the product of 4½ bushels of wheat.

[2] Data for 1911.

OATS.

TABLE 26.—*Area and production of undermentioned countries, 1913–1915.*

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	38,399,000	38,442,000	40,780,000	1,121,768,000	1,141,060,000	1,540,362,000
Canada:						
New Brunswick	195,000	200,000	201,000	5,946,000	6,488,000	6,378,000
Quebec	1,303,000	1,327,000	1,400,000	39,025,000	42,119,000	43,834,000
Ontario	2,814,000	2,840,000	3,095,000	105,159,000	99,400,000	110,996,000
Manitoba	1,398,000	1,331,000	1,441,000	56,759,000	31,951,000	65,263,000
Saskatchewan	2,755,000	2,520,000	2,937,000	114,112,000	61,816,000	142,121,000
Alberta	1,639,000	1,502,000	1,912,000	71,542,000	57,076,000	98,296,000
Other	330,000	341,000	379,000	12,126,000	14,228,000	14,147,000
Total Canada	10,434,000	10,061,000	11,365,000	404,669,000	313,078,000	481,035,000
Mexico	(1)	(1)	(1)	17,000	17,000	17,000
Total				1,526,454,000	1,454,155,000	2,021,414,000
SOUTH AMERICA.						
Argentina	2,487,000	3,087,000	2,869,000	75,783,000	50,981,000	63,392,000
Chile	94,000	122,000	151,000	4,443,000	4,437,000	7,105,000
Uruguay	50,000	97,000	83,000	872,000	1,850,000	1,040,000
Total	2,631,000	3,306,000	3,103,000	81,098,000	57,268,000	71,537,000
EUROPE.						
Austria-Hungary:						
Austria	4,707,000	(1)	(1)	160,068,000	150,000,000	145,000,000
Hungary proper	2,884,000	2,603,000	2,664,000	99,807,000	86,537,000	80,925,000
Croatia-Slavonia	256,000	(1)	(1)	6,163,000	4,000,000	5,000,000
Bosnia-Herzegovina	299,000	(1)	(1)	4,796,000	3,000,000	4,000,000
Total Austria-Hungary	8,146,000			270,834,000	243,537,000	234,925,000
Belgium	671,000	686,000	(1)	47,957,000	49,742,000	40,000,000
Bulgaria	417,000	400,000	(1)	10,125,000	8,623,000	9,545,000
Denmark	[2] 1,059,000	(1)	1,024,000	46,755,000	38,653,000	42,874,000
Finland	(1)	(1)	(1)	22,924,000	18,678,000	22,000,000
France	9,833,000	8,873,000	9,051,000	311,157,000	261,196,000	243,531,000
Germany	10,967,000	10,843,000	(1)	669,231,000	622,674,000	650,000,000
Italy	1,251,000	1,213,000	1,208,000	48,469,000	26,827,000	31,443,000
Netherlands	348,000	346,000	351,000	21,117,000	19,957,000	19,644,000
Norway	[2] 270,000	(1)	(1)	11,734,000	9,325,000	9,325,000
Roumania	1,290,000	1,056,000	1,065,000	35,138,000	25,015,000	29,054,000
Russia:						
Russia proper	38,049,000			990,957,000		
Poland	2,891,000			84,412,000		
Northern Caucasia	1,103,000			30,222,000		
Total Russia, European	42,043,000	[3] 46,924,000	[3] 44,787,000	1,105,591,000	[4] 866,143,000	[4] 1,006,983,000
Serbia	272,000	(1)		5,512,000	5,000,000	4,000,000
Spain	1,351,000	1,304,000	1,403,000	25,333,000	31,227,000	36,949,000
Sweden	1,974,000	1,960,000	(1)	99,815,000	52,557,000	70,000,000
United Kingdom:						
England	1,772,000	1,730,000	1,889,000	70,404,000	71,408,000	78,938,000
Wales	202,000	200,000	199,000	6,992,000	7,431,000	7,314,000
Scotland	938,000	920,000	972,000	37,148,000	38,115,000	40,313,000
Ireland	1,049,000	1,029,000	1,089,000	66,103,000	63,287,000	68,604,000
Total United Kingdom	3,961,000	3,879,000	4,149,000	180,647,000	180,241,000	195,169,000
Total				2,907,339,000	2,459,395,000	2,645,442,000

[1] No official statistics.
[2] Census of 1910.
[3] 63 governments of European and 10 of Asiatic Russia.
[4] 51 governments of European and 10 of Asiatic Russia.

OATS—Continued.

TABLE 26.—*Area and production of undermentioned countries, 1913–1915*—Continued.

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
ASIA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Cyprus	(1)	(1)	(1)	400,000	400,000	400,000
Russia:						
Central Asia (4 governments)	997,000			16,985,000		
Siberia (4 governments)	4,666,000			102,681,000		
Transcaucasia (1 government)	3,000			75,000		
Total Russia, Asiatic	5,666,000	(2)	(2)	119,741,000	(2)	(2)
Total				120,141,000	400,000	400,000
AFRICA.						
Algeria	539,000	573,000	590,000	17,973,000	10,000,000	15,082,000
Tunis	133,000	99,000	148,000	4,133,000	689,000	3,445,000
Union of South Africa	(1)	(1)	(1)	[3] 9,661,000	[3] 9,661,000	[3] 9,661,000
Total				31,767,000	20,350,000	28,188,000
AUSTRALASIA.						
Australia:						
Queensland	4,000	(1)	(1)	85,000	58,000	(1)
New South Wales	85,000	(1)	(1)	1,725,000	1,893,000	(1)
Victoria	439,000	442,000	(1)	8,586,000	9,170,000	(1)
South Australia	156,000	117,000	141,000	1,726,000	1,239,000	380,000
Western Australia	128,000	140,000	74,000	2,175,000	1,708,000	629,000
Tasmania	62,000	(1)	(1)	2,328,000	1,644,000	(1)
Total Australia	874,000	859,000		16,625,000	15,712,000	5,000,000
New Zealand	387.000	362,000	288,000	14,013,000	15,206,000	11,797,000
Total Australasia	1,261,000	1,221,000		30,638,000	30,918,000	16,797,000
Grand total				4,697,437,000	4,022,486,000	4,783,778,000

[1] No official statistics. [2] Included in "Total Russia, European." [3] Census of 1911.

TABLE 27.—*Oats: Total production in countries named in Table 26, 1895–1915.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bushels.		*Bushels.*		*Bushels.*		*Bushels.*
1895	3,008,154,000	1901	2,862,615.000	1906	3,544,961,000	1911	3,808,561,000
1896	2,847,115,000	1902	3,626,303,000	1907	3,603,896,000	1912	4,617,394,000
1897	2,633,971,000	1903	3,378,034,000	1908	3,591,012,000	1913	4,697,437,000
1898	2,903,974,000	1904	3,611,302,000	1909	4,312,882,000	1914	4,022,486,000
1899	3,256,256,000	1905	3,510.167,000	1910	4,182,410,000	1915	4,783,778,000
1900	3,166,002,000						

TABLE 28.—*Oats: Average yield per acre of undermentioned countries, 1890–1914.*

Year.	United States.	Russia (European).[1]	Germany.[1]	Austria.[1]	Hungary proper.[1]	France.[2]	United Kingdom.[2]
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Average:							
1890–1899	26.1	17.8	40.0	25.3		29.8	43.6
1900–1909	29.3	20.0	50.7	29.8	30.7	31.6	44.3
1905	34.0	20.2	43.6	27.7	31.0	28.6	41.7
1906	31.2	15.1	55.7	34.1	34.2	27.0	43.8
1907	23.7	19.7	58.3	35.7	30.0	31.8	45.1
1908	25.0	20.1	50.2	32.0	26.8	29.6	43.5
1909	28.6	25.7	59.0	37.4	33.8	34.1	45.9
1910	31.6	22.5	51.3	31.5	26.8	29.8	44.3
1911	24.4	18.6	49.6	33.7	33.8	30.8	41.5
1912	37.4	23.6	54.1	36.2	31.1	31.9	41.7
1913	29.2	26.3	61.1	39.3	34.6	31.6	43.0
1914	29.7		57.4		33.2	35.8	44.0
Average (1905–1914)	29.5		54.0		31.5	31.1	43.5

[1] Bushels of 32 pounds. [2] Winchester bushels.

OATS—Continued.

TABLE 29.—*Oats: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value, Dec. 1.	Chicago cash price for bushel, contract.[1]				Domestic exports, including oatmeal, fiscal year beginning July 1.[2]	Imports during fiscal year beginning July 1.[3]
						December.		Following May.			
						Low.	High.	Low.	High.		
	Acres.	*Bush.*	*Bushels.*	*Cts.*	*Dollars.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Bushels.*	*Bushels.*
1849			*146,584,000*								
1859			*172,643,000*								
1866	8,864,000	30.2	268,141,000	35.1	94,058,000	36	43	59	78	825,895	778,198
1867	10,082,000	27.6	278,698,000	44.5	123,903,000	52	57¼			122,554	780,798
1868	9,666,000	26.4	254,961,000	41.7	106,356,000	43	49½	56¾	62½	481,871	326,659
1869	9,461,000	30.5	288,334,000	38.0	109,522,000	40	44¾	46½	53½	121,517	2,266,785
1869			*282,107,000*								
1870	8,792,000	28.1	247,277,000	39.0	96,444,000	37¾	41	47¼	51	147,572	599,514
1871	8,366,000	30.6	255,743,000	36.2	92,591,000	30¾	33	34¾	42½	262,975	535,250
1872	9,001,000	30.2	271,747,000	29.9	81,304,000	23½	25¾	30	34	714,072	225,555
1873	9,752,000	27.7	270,340,000	34.6	93,474,000	34	40⅝	44	48½	812,873	191,802
1874	10,897,000	22.1	240,369,000	47.1	113,134,000	51¾	54½	57¼	64½	504,770	1,500,040
1875	11,915,000	29.7	354,318,000	32.0	113,441,000	29½	30½	28⅝	31½	1,466,228	121,547
1876	13,359,000	24.0	320,884,000	32.4	103,845,000	31¾	34½	37¼	45¾	2,854,128	41,597
1877	12,826,000	31.7	406,394,000	28.4	115,546,000	24⅛	27	23	27	3,715,479	21,391
1878	13,176,000	31.4	413,579,000	24.6	101,752,000	19⅝	20⅜	24⅜	30½	5,452,136	13,395
1879	12,684,000	28.7	363,761,000	33.1	120,533,000	32¾	36¾	29½	34⅞	766,366	489,576
1879	*16,145,000*	*25.3*	*407,859,000*								
1880	16,188,000	25.8	417,885,000	36.0	150,244,000	29⅛	33½	36¼	39½	402,904	64,412
1881	16,832,000	24.7	416,481,000	46.4	193,199,000	43½	46¾	48¾	56⅜	625,690	1,850,983
1882	18,495,000	26.4	488,251,000	37.5	182,978,000	34¾	41½	38¾	42¾	461,496	815,017
1883	20,325,000	28.1	571,302,000	32.7	187,040,000	29⅜	36⅛	30¾	34¼	3,274,622	121,069
1884	21,301,000	27.4	583,628,000	27.7	161,528,000	22½	25¼	34½	37	6,203,104	94,310
1885	22,784,000	27.6	629,409,000	28.5	179,632,000	27	29	26¼	29⅝	7,311,306	149,480
1886	23,658,000	26.4	624,134,000	29.8	186,138,000	25¾	27¼	25⅛	27½	1,374,635	139,575
1887	25,921,000	25.4	659,618,000	30.4	200,700,000	28⅝	30⅞	32½	38	573,080	123,817
1888	26,998,000	26.0	701,735,000	27.8	195,424,000	25	26⅞	21⅝	23⅝	1,191,471	131,501
1889	27,462,000	27.4	751,515,000	22.9	171,781,000	20	21	24¾	30	15,107,238	153,232
1889	*28,321,000*	*28.6*	*809,251,000*								
1890	26,431,000	19.8	523,621,000	42.4	222,048,000	39⅞	43⅞	45¼	54	1,382,836	41,848
1891	25,582,000	28.9	738,394,000	31.5	232,312,000	31⅛	33⅝	28⅛	33½	10,586,644	47,782
1892	27,064,000	24.4	661,035,000	31.7	209,254,000	25⅝	31¼	28¾	32¼	2,700,793	49,433
1893	27,273,000	23.4	638,855,000	29.4	187,576,000	27½	29⅛	32½	36	6,290,229	31,759
1894	27,024,000	24.5	662,037,000	32.4	214,817,000	28¾	29⅜	27½	30¾	1,708,824	330,318
1895	27,878,000	29.6	824,444,000	19.9	163,655,000	16⅝	17½	18	19⅜	15,156,618	66,602
1896	27,566,000	25.7	707,346,000	18.7	132,485,000	16½	18¾	16⅞	18¾	37,725,083	131,204
1897	25,730,000	27.2	698,768,000	21.2	147,975,000	21	23⅞	26	32	73,880,307	25,093
1898	25,777,000	28.4	730,907,000	25.5	186,405,000	26	27¾	24	27¾	33,534,362	28,098
1899	26,341,000	30.2	796,178,000	24.9	198,168,000	22¼	23	21¼	23¾	45,048,857	51,576
1899	*29,540,000*	*31.9*	*943,389,000*								
1900	27,365,000	29.6	809,126,000	25.8	208,669,000	21¾	22¾	27⅞	31	42,268,931	32,107
1901	28,541,000	25.8	736,809,000	39.9	293,659,000	42	48¼	41	49½	13,277,612	38,978
1902	28,653,000	34.5	987,843,000	30.7	303,585,000	29¼	32	33⅜	38¼	8,381,805	150,065
1903	27,638,000	28.4	784,094,000	34.1	267,662,000	34¼	38	39⅝	44¾	1,960,740	183,983
1904	27,843,000	32.1	894,596,000	31.3	279,900,000	28⅛	32	28⅝	32	8,394,692	55,699
1905	28,047,000	34.0	953,216,000	29.1	277,048,000	29½	32¾	32⅛	34¾	48,434,541	40,025
1906	30,959,000	31.2	964,905,000	31.7	306,293,000	33	35¾	44½	48½	6,386,334	91,289
1907	31,837,000	23.7	754,443,000	44.3	334,568,000	46½	50⅞	52¾	56½	2,518,855	383,418
1908	32,344,000	25.0	807,156,000	47.2	381,171,000	48⅜	50½	56¼	62½	2,333,817	6,691,700
1909	33,204,000	30.3	1,007,353,000								
1909	*35,159,000*	*28.6*	*1,007,129,000*	40.2	405,120,000	40	45	36½	43¼	2,548,726	1,034,511
1910[4]	37,548,000	31.6	1,186,341,000	34.4	408,388,000	31	32½	31⅞	36	3,845,850	107,318
1911	37,763,000	24.4	922,298,000	45.0	414,663,000	46¼	47⅜	50½	58	2,677,749	2,622,357
1912	37,917,000	37.4	1,418,337,000	31.9	452,469,000	31	31¾	35⅛	43	36,455,474	723,899
1913	38,399,000	29.2	1,121,768,000	39.2	439,596,000	37⅝	40⅛	37	42½	2,748,743	22,273,624
1914	38,442,000	29.7	1,141,060,000	43.8	499,431,000	46⅞	49¾	50½	56	100,949,272	630,722
1915	40,780,000	37.8	1,540,362,000	36.1	555,569,000	40⅞	44				

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[1] Quotations are for No. 2 to 1906.

[2] Oatmeal not included 1866 to 1882, inclusive.

[3] Oatmeal not included 1867 to 1882 inclusive, and 1909.

[4] Figures adjusted to census basis.

OATS—Continued.

TABLE 30.—*Oats: Acreage, production, and total farm value, by States, 1914 and 1915.*

State.	Thousands of acres.		Production (thousands of bushels).		Total value, basis Dec. 1 price (thousands of dollars).	
	1915	1914	1915	1914	1915	1914
Maine	152	141	6,080	5,781	2,736	3,295
New Hampshire	12	12	456	456	246	264
Vermont	81	79	3,483	3,358	1,846	1,847
Massachusetts	9	9	324	333	165	186
Rhode Island	2	2	66	55	33	32
Connecticut	13	11	422	319	232	175
New York	1,340	1,275	54,270	40,162	24,422	20,483
New Jersey	70	67	2,275	1,943	1,092	1,049
Pennsylvania	1,140	1,073	43,320	32,190	19,061	16,417
Delaware	4	4	134	108	68	54
Maryland	45	43	1,530	1,161	750	604
Virginia	225	191	5,625	2,960	3,094	1,717
West Virginia	120	105	3,480	2,100	1,775	1,155
North Carolina	350	250	8,050	4,375	4,991	2,844
South Carolina	525	375	9,975	7,500	6,683	5,325
Georgia	905	450	17,648	9,000	11,648	6,300
Florida	61	50	1,220	900	854	630
Ohio	1,683	1,650	69,003	50,325	24,841	22,646
Indiana	1,638	1,575	65,520	44,888	22,277	19,302
Illinois	4,343	4,300	195,435	125,990	68,402	55,436
Michigan	1,530	1,515	64,260	50,752	22,491	22,838
Wisconsin	2,150	2,300	99,975	62,100	35,991	26,703
Minnesota	3,125	3,040	134,375	85,120	43,000	34,048
Iowa	4,950	5,000	198,000	165,000	63,360	67,650
Missouri	1,225	1,200	31,850	25,800	12,103	11,352
North Dakota	2,450	2,318	98,000	64,904	26,460	24,014
South Dakota	1,725	1,606	72,450	44,165	20,286	16,783
Nebraska	2,200	2,175	70,400	69,600	21,824	27,840
Kansas	1,650	1,760	43,725	58,960	16,178	24,763
Kentucky	210	175	5,460	3,675	2,621	1,948
Tennessee	357	350	8,746	8,050	4,373	4,266
Alabama	600	390	11,400	8,580	7,182	5,920
Mississippi	250	160	5,375	3,680	3,225	2,392
Louisiana	120	70	3,000	1,610	1,650	1,014
Texas	1,250	900	44,375	22,500	18,638	10,800
Oklahoma	1,400	1,100	37,800	30,250	13,230	12,402
Arkansas	375	260	10,125	6,240	5,265	3,307
Montana	600	530	31,200	18,550	9,984	7,234
Wyoming	227	225	9,534	7,875	4,100	3,780
Colorado	300	325	11,700	13,000	4,797	5,850
New Mexico	60	52	2,160	1,976	1,080	889
Arizona	9	8	333	336	213	235
Utah	100	95	4,700	4,750	2,115	2,042
Nevada	13	13	585	676	322	372
Idaho	335	332	15,745	14,608	5,353	5,551
Washington	275	297	13,750	13,959	5,088	5,863
Oregon	365	364	16,060	12,740	5,942	5,733
California	211	220	6,963	7,700	3,482	4,081
United States	40,780	38,442	1,540,362	1,141,060	555,569	499,431

OATS—Continued.

TABLE 31.—*Oats: Production and distribution in the United States, 1897–1915.*

[000 omitted.]

Year.	Old stock on farms Aug. 1.	Crop.	Total supplies.	Stock on farms Mar. 1 following.	Shipped out of county where grown.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1897	71,139	698,768	769,907	271,729	204,147
1898	44,554	730,907	775,461	283,209	193,527
1899	50,537	796,178	846,715	290,937	223,014
1900	54,214	809,126	863,340	292,803	242,850
1901	47,713	736,809	784,522	226,393	143,398
1902	30,570	987,843	1,018,413	364,926	258,438
1903	73,352	784,094	857,446	273,708	223,959
1904	42,194	894,596	936,790	347,166	261,989
1905	55,836	953,216	1,009,052	379,805	277,133
1906	67,688	964,905	1,032,593	384,461	266,182
1907	68,258	754,443	822,701	267,476	210,923
1908	37,797	807,156	844,953	278,847	244,444
1909	26,323	1,007,130	1,033,453	365,432	329,252
1910	64,199	1,186,341	1,250,540	442,665	363,103
1911	67,793	922,298	990,091	289,988	265,958
1912	34,872	1,418,337	1,453,209	604,216	438,084
1913	103,900	1,121,768	1,225,668	419,476	297,326
1914	62,467	1,141,060	1,203,527	379,369	335,539
1915	55,607	1,540,362	1,595,969	....	....

TABLE 32.—*Oats: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
Me	38.0	35.8	37.1	34.0	37.0	42.4	38.5	34.6	40.0	41.0	40.0	53	54	51	55	57	45	20.83	18.00
N. H	35.6	34.5	32.5	30.6	31.5	42.8	33.8	39.0	35.0	38.0	38.0	56	61	48	56	58	54	20.56	20.52
Vt	38.1	37.2	34.0	33.3	32.2	41.5	35.0	43.0	39.0	42.5	43.0	54	59	48	52	55	53	21.14	22.79
Mass	34.6	34.0	35.0	33.0	31.0	35.5	35.0	34.0	35.0	37.0	36.0	54	58	47	54	56	51	18.73	18.36
R. I	29.4	29.3	29.5	31.0	25.0	35.0	29.0	28.6	26.0	27.5	33.0	54	58	45	50	58	50	15.09	16.50
Conn	31.8	34.2	31.5	32.6	27.5	36.8	35.1	30.7	28.0	29.0	32.5	53	56	49	55	55	55	16.45	17.88
N. Y	32.2	32.3	30.7	30.1	28.2	34.5	29.5	30.8	33.5	31.5	40.5	48	51	42	47	51	45	14.85	18.22
N. J	29.6	26.6	29.5	30.7	25.5	37.1	28.5	27.6	29.0	29.0	32.5	49	50	44	47	54	48	14.40	15.60
Pa	30.6	27.4	29.6	27.3	26.0	35.2	28.3	33.1	31.0	30.0	38.0	47	50	41	46	51	44	14.34	16.72
Del	29.5	24.5	30.0	29.8	25.5	33.8	30.0	30.5	30.5	27.0	33.5	48	47	45	51	50	51	14.28	17.08
Md	28.0	25.4	27.5	25.5	25.4	30.0	27.0	30.0	28.0	27.0	34.0	48	49	45	48	52	49	13.60	16.66
Va	20.2	18.0	19.6	19.1	19.0	22.0	20.0	22.2	21.5	15.5	25.0	52	54	52	52	58	55	10.66	13.75
W. Va	22.9	20.6	19.3	19.0	22.0	25.2	22.0	28.0	24.0	20.0	29.0	51	56	47	51	55	51	12.26	14.79
N. C	17.8	16.2	15.6	16.5	16.5	18.2	16.5	18.6	19.5	17.5	23.0	61	63	62	61	65	62	11.23	14.26
S. C	20.5	18.5	20.0	20.0	21.0	21.0	20.4	21.5	23.5	20.0	19.0	69	72	66	71	71	67	14.68	12.73
Ga	19.0	15.5	16.7	17.2	19.0	18.2	21.5	20.8	22.0	20.0	19.5	67	70	65	68	70	66	13.84	12.87
Fla	16.2	14.0	13.7	14.5	17.0	16.2	13.5	17.2	18.0	18.0	20.0	71	75	70	70	70	70	11.58	14.00
Ohio	33.0	32.8	22.8	26.4	32.5	37.2	32.1	44.0	30.2	30.5	41.0	40	45	33	40	45	36	13.56	14.76
Ind	29.4	28.2	20.2	21.2	30.5	35.4	28.7	40.1	21.4	28.5	40.0	38	43	30	38	43	34	11.15	13.60
Ill	32.2	29.5	24.5	23.0	36.6	38.0	28.8	43.3	23.8	29.3	45.0	38	42	30	38	44	35	11.68	15.75
Mich	31.5	30.7	20.8	29.7	30.5	34.0	28.6	34.9	30.0	33.5	42.0	40	46	33	39	45	35	12.67	14.70
Wis	33.2	37.4	22.0	31.1	35.0	29.8	29.8	37.3	36.5	27.0	46.5	39	45	32	37	43	36	12.12	16.74
Minn	31.4	32.5	24.5	22.0	33.0	28.7	22.8	41.7	37.8	28.0	43.0	35	40	26	32	40	32	10.49	13.76
Iowa	32.4	33.8	24.2	24.3	27.0	37.8	25.5	44.2	34.5	33.0	40.0	34	41	27	34	41	32	11.57	12.80
Mo	24.1	22.8	21.5	19.3	27.0	33.6	14.8	33.0	21.2	21.5	26.0	40	45	35	45	44	38	9.59	9.88

[1] Based upon farm price Dec. 1.

OATS—Continued.

TABLE 32.—*Oats: Yield per acre, price per bushel Dec. 1, and value per acre, by States*—Continued.

State.	Yield per acre (bushel).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
N. Dak	27.8	32.5	24.5	23.4	32.0	7.0	23.5	41.4	25.7	28.0	40.0	34	41	22	30	37	27	7.88	10.80
S. Dak	27.4	36.4	24.7	23.0	30.0	23.0	7.4	33.8	26.5	27.5	42.0	34	43	25	34	38	28	7.60	11.76
Nebr	25.4	29.5	20.4	22.0	25.0	28.0	13.9	24.4	26.5	32.0	32.0	35	43	30	38	40	31	8.80	9.92
Kans	24.9	23.6	15.0	22.0	28.2	33.3	15.0	32.0	19.5	33.5	26.5	40	45	35	45	42	37	10.42	9.80
Ky	21.5	21.5	17.6	16.2	22.3	25.0	18.4	26.9	19.8	21.0	26.0	48	50	44	52	53	48	10.74	12.48
Tenn	21.6	21.5	20.8	21.0	20.0	23.0	19.5	21.7	21.0	23.0	24.5	50	50	47	53	53	50	10.77	12.25
Ala	18.8	17.2	17.5	18.0	16.5	18.5	19.2	20.0	20.5	22.0	19.0	64	66	62	69	69	63	13.10	11.97
Miss	18.9	18.0	17.9	17.5	16.0	19.2	18.4	17.4	20.0	23.0	21.5	62	65	60	63	65	60	12.10	12.90
La	20.5	17.2	14.5	20.0	20.0	21.5	21.0	20.8	22.0	23.0	25.0	57	65	51	57	63	55	12.37	13.75
Tex	29.0	34.8	19.0	28.9	18.7	35.0	25.1	36.0	32.5	25.0	35.5	50	54	43	51	48	42	14.81	14.91
Okla	24.6	34.3	15.0	25.0	29.0	36.5	9.0	25.1	18.0	27.5	27.0	41	48	34	45	41	35	9.15	9.45
Ark	22.9	20.5	19.5	21.4	22.8	27.5	20.0	19.9	26.5	24.0	27.0	52	53	50	53	53	52	11.99	14.04
Mont	45.1	43.2	49.0	41.6	51.3	38.0	49.8	48.0	43.5	35.0	52.0	40	40	35	32	39	32	16.35	16.64
Wyo	37.1	39.5	37.0	36.4	35.0	32.0	34.5	41.8	38.0	35.0	42.0	46	50	37	40	48	43	16.14	18.06
Colo	38.7	40.4	38.0	39.5	38.0	39.1	35.0	42.8	35.0	40.0	39.0	46	48	38	44	45	41	16.89	15.99
N. Mex	35.2	34.6	38.5	33.5	40.0	27.4	38.8	34.7	30.0	38.0	36.0	56	57	45	60	45	50	17.97	18.00
Ariz	38.5	34.4	29.0	36.0	37.0	40.1	42.0	44.7	43.0	42.0	37.0	68	60	70	50	70	64	28.70	23.68
Utah	46.1	43.7	45.0	49.5	46.1	43.0	44.7	46.4	46.0	50.0	47.0	46	47	49	40	43	45	20.86	21.15
Nev	43.6	38.8	43.0	45.0	40.0	44.7	45.0	40.0	43.0	52.0	45.0	61	62	52	65	55	55	26.68	24.75
Idaho	44.9	40.7	50.5	44.0	44.5	38.5	44.0	48.9	46.5	44.0	47.0	40	40	35	32	38	34	16.50	15.98
Wash	47.9	43.2	55.5	44.5	49.0	42.8	51.7	48.2	47.5	47.0	50.0	43	45	40	40	42	37	20.36	18.50
Oreg	36.9	33.8	35.0	33.4	37.8	34.5	34.7	38.2	42.3	35.0	44.0	44	44	41	38	45	37	15.79	16.28
Cal	34.0	31.5	33.5	33.5	31.4	37.0	34.0	39.0	31.6	35.0	33.0	58	59	55	60	53	50	19.50	16.50
U. S	30.0	31.2	23.7	25.0	30.3	31.6	24.4	37.4	29.2	29.7	37.8	39.4	45.0	31.9	39.2	43.8	36.1	11.65	13.62

[1] Based upon farm price Dec. 1.

TABLE 33.—*Oats: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts*	*Cts.*	*Cts.*
January	45.0	39.1	52.5	47.0	65.7	63.4	45.1	37.8	41.9	35.1	51.5	51.3	43.4	39.0
February	50.1	39.3	57.0	48.3	67.4	63.9	51.1	37.4	47.1	34.9	56.1	54.8	46.1	39.5
March	52.1	38.9	61.2	48.0	70.2	62.9	52.0	37.4	48.8	34.7	59.6	52.8	50.2	38.8
April	53.4	39.5	61.5	48.8	71.8	62.4	54.1	38.3	50.1	35.1	60.9	52.5	49.8	39.7
May	53.4	39.5	64.3	49.0	70.9	61.9	54.0	38.2	49.6	34.8	58.9	52.2	52.1	41.8
June	51.3	40.0	62.2	49.4	70.4	62.4	51.4	38.7	47.9	35.0	56.6	51.5	49.9	40.6
July	46.7	38.8	61.5	49.6	66.3	62.6	46.2	37.7	43.0	34.6	49.1	45.1	47.9	41.8
August	45.4	36.7	59.3	49.5	63.6	60.0	44.0	36.1	42.9	31.6	45.6	44.2	46.6	39.4
September	38.5	42.3	54.9	53.2	62.9	63.9	36.1	42.8	34.2	38.1	44.5	47.8	42.9	40.9
October	34.5	43.3	46.6	51.7	63.6	66.4	32.1	43.2	30.4	39.9	44.6	49.3	37.2	41.8
November	34.9	42.9	45.5	51.1	62.3	65.2	33.5	43.2	30.7	39.2	44.4	49.7	37.1	40.8
December	36.1	43.8	45.0	51.7	62.7	66.3	35.2	44.0	31.3	40.2	44.5	49.7	37.7	43.3
Average	42.7	40.9	54.2	50.1	66.1	63.5	42.1	40.5	38.4	36.9	48.0	48.2	42.3	41.0

OATS—Continued.

TABLE 34.—*Oats: Condition of crop, United States, on first of months named, 1895–1915.*

Year.	June.	July.	August.	When harvested.	Year.	June.	July.	August.	When harvested.	Year.	June.	July.	August.	When harvested.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1895....	84.3	83.2	84.5	86.0	1902....	90.6	92.1	89.4	87.2	1909....	88.7	88.3	85.5	83.8
1896....	98.8	96.3	77.3	74.0	1903....	85.5	84.3	79.5	75.7	1910....	91.0	82.2	81.5	83.3
1897....	89.0	87.5	86.0	84.6	1904....	89.2	89.8	86.6	85.6	1911....	85.7	68.8	65.7	64.5
1898....	98.0	92.8	84.2	79.0	1905....	92.9	92.1	90.8	90.3	1912....	91.1	89.2	90.3	92.3
1899....	88.7	90.0	90.8	87.2	1906....	85.9	84.0	82.8	81.9	1913....	87.0	76.3	73.8	74.0
1900....	91.7	85.5	85.0	82.9	1907....	81.6	81.0	75.6	65.5	1914....	89.5	84.7	79.4	75.8
1901....	85.3	83.7	73.6	72.1	1908....	92.9	85.7	76.8	69.7	1915....	92.2	93.9	91.6	91.1

TABLE 35.—*Oats: Wholesale price per bushel, 1900–1915.*

Date.	New York.		Baltimore.		Cincinnati.		Chicago.		Milwaukee.		Duluth.		Detroit.		San Francisco.	
	No. 2 white.		No. 3 white.		No. 2 mixed.		Contract.		No. 3 white.		No. 3 white.		Standard.		White (per 100 lbs.).	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts*	*Dols.*	*Dols.*
1900..	26½	32½	24	31¼	21	28	21	26¼	24	29	22¼	27½	24	29¼	1.22½	1.40
1901..	32	55	30	53½	25	50¾	23¼	48¼	25½	48¾	25	46⅞	28	60½	1.02½	1.55
1902..	31	69	31	64	27	57	25	56	30½	58	27½	46⅝	34¾	61	1.15	1.50
1903..	39½	47½	37	46½	31½	43½	31¼	45	33½	41	30½	39	35½	45	1.17½	1.37½
1904..	35½	58½	33½	49½	31	44½	28¼	46	28½	45	27¾	43	31¾	48¼	1.25	1.60
1905..	30	38½	27½	38½	35	35½	25	34¼	27⅛	35½	25	32¾	26¼	37	1.37½	1.80
1906..	35½	48	34	47	30	43	28⅞	42¾	29	43	28⅛	41	32	43¼	......	......
1907..	41	68	40	63	37	55½	33½	56½	32¾	56	33⅜	53	37	58	1.30	1.85
1908..	56½	59	51	63½	47	60	46	60½	45	62½	45¾	57	47	64	1.40	1.75
1909..	55½	62½	38½	64	35½	62	36½	62½	35½	62½	33	58½	36½	64½	1.55	2.25
1910..	36½	62½	35¼	53½	31½	52	29¾	49	30½	49½	29	47½	34	51	1.42½	1.75
1911..	35½	55	34¾	53½	31	51½	28⅞	47⅝	29¾	49	28⅜	47⅛	32	51	1.35	1.85
1912..	38½	64½	35	64½	32	61	30¼	58½	30¾	59¾	28¼	56⅛	33½	63½	1.47½	2.12½
1913..	41¼	50	35¼	48	33½	47	31⅝	43⅝	31¼	42½	27⅛	42⅛	34½	45½	1.37½	1.67½
1914..	43½	58½	41½	55½	35	52½	33½	51⅛	34¼	52	33⅛	50⅝	37¾	53	1.20	1.60
1915.																
Jan...	55½	64	52	60½	51	58½	49	58⅝	50	58¾	49¼	56⅞	52½	59¼	1.50	1.85
Feb..	61½	66	61	62½	57	59½	53	60	53¾	61	52¾	58⅜	56½	62	1.77½	1.85
Mar..	61	66½	59¼	64	56	61½	53⅝	60⅛	53	61½	51⅜	58⅞	56½	62	1.72½	1.80
Apr..	61½	64	62	62¾	56½	59½	53⅞	57½	54¾	58	52	56⅜	58½	61½	1.75	1.80
May..	59	63½	56	62	51½	57	50½	56	51½	56¾	50⅛	54½	54½	58½	1.65	1.80
June..	53¾	57½	50	56½	46	52	46⅜	49¾	47¼	51½	44⅛	48⅜	50	54	1.40	1.70
July..	56½	65½	50½	63½	48	58	48¾	59½	49	57	47	58	51	59	1.42½	1.50
Aug..	55	70½	41	66	36½	54	46	60	33¼	63	33¼	54½	41	65	1.37½	1.50
Sept..	Nominal..		38	40	33	38	35½	39	34	38	32	33⅝	36½	40	1.30	1.40
Oct...	...do......		38	42	35	39	35¾	39⅜	34½	38½	31⅝	35⅜	39	42	1.30	1.40
Nov..	...do......		41	43	37	39	37¼	41½	35½	40½	32¼	37⅞	38	41	1.35	1.40
Dec..	...do......		42½	48	39	45	40⅞	44	40½	45½	37⅝	42⅞	42	45	1.32½	1.40
Year.	53¾	70½	38	66	31	61½	35½	60⅛	33¼	61½	31⅝	58⅞	36½	65	1.30	1.85

OATS—Continued.

TABLE 36.—*Oats: International trade, calendar years 1912–1914.*

[See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.)	Country.	1912	1913	1914 (prelim.)
	Bushels.	*Bushels.*	*Bushels.*		*Bushels.*	*Bushels.*	*Bushels.*
Argentina	61,731	61,298	24,368	Roumania	2,000	2,000	....
Bulgaria	173	173	....	Russia	58,457	41,309	18,977
Canada	9,660	31,732	19,287	Sweden	361	4,730	2,303
China	515	285	324	United Kingdom	631	1,655	854
Chile	2,714	3,687	3,372	United States	30,374	5,275	35,067
Denmark	179	194	168	Other countries	5,365	4,221	....
Finland	390	456	....				
Germany	26,538	45,584	....	Total	240,384	233,730	....
Netherlands	41,316	31,131	14,589				

IMPORTS.

Austria-Hungary	1,042	1,047	....	Philippine Islands	770	537	63
Belgium	9,560	9,555	....	Russia	1,200	2,608	1,475
Denmark	3,911	4,224	3,739	Sweden	6,703	4,431	4,918
Cuba	1,432	1,503	1,533	Switzerland	12,661	12,205	10,082
Finland	1,070	1,002	....	United Kingdom	64,924	64,470	49,348
France	14,929	39,992	35,448	United States	3,263	13,309	9,429
Germany	45,879	34,793	....	Other countries	2,678	2,461	....
Italy	10,830	7,331	4,549				
Netherlands	51,304	38,711	20,417	Total	232,978	238,572	....
Norway	822	393	474				

BARLEY.

TABLE 37.—*Area and production of undermentioned countries. 1913–1915.*

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	7,499,000	7,565,000	7,395,000	178,189,000	194,953,000	237,009,000
Canada:						
New Brunswick	2,000	2,000	2,000	74,000	64,000	57,000
Quebec	89,000	85,000	85,000	2,263,000	2,261,000	2,312,000
Ontario	485,000	461,000	449,000	14,589,000	13,987,000	15,109,000
Manitoba	496,000	468,000	490,000	14,305,000	9,828,000	16,543,000
Saskatchewan	332,000	290,000	287,000	10,421,000	4,901,000	9,945,000
Alberta	197,000	178,000	185,000	6,334,000	4,806,000	6,542,000
Other	12,000	12,000	11,000	333,000	354,000	360,000
Total Canada	1,613,000	1,496,000	1,509,000	48,319,000	36,201,000	50,868,000
Mexico	(1)	292,000	(1)	7,000,000	10,839,000	10,000,000
Total	....	....	....	233,508,000	241,993,000	297,877,000
SOUTH AMERICA.						
Argentina	368,000	418,000	418,000	4,455,000	8,037,000	8,000,000
Chile	131,000	153,000	224,000	4,596,000	5,567,000	3,750,000
Uruguay	3,000	14,000	4,000	38,000	165,000	37,000
Total	502,000	585,000	646,000	9,089,000	13,769,000	11,787,000

[1] No official statistics.

BARLEY—Continued.

Table 37.—*Area and production of undermentioned countries, 1913–1915*—Continued.

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
EUROPE.						
	Acres.	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Austria-Hungary:						
Austria	2,699,000	(1)	(1)	75,917,000	75,000,000	75,000,000
Hungary proper	2,887,000	2,705,000	2,830,000	79,825,000	65,265,000	56,186,000
Croatia-Slavonia	158,000	(1)	(1)	2,956,000	1,940,000	2,000,000
Bosnia-Herzegovina	263,000	(1)	(1)	3,904,000	3,000,000	3,000,000
Total Austria-Hungary	6,007,000	....	....	162,602,000	145,205,000	136,186,000
Belgium	84,000	84,000	(1)	4,217,000	4,232,000	4,000,000
Bulgaria	603,000	594,000	(1)	13,891,000	10,319,000	17,670,000
Denmark	597,000	(1)	644,000	24,997,000	20,780,000	25,898,000
Finland	(1)	(1)	(1)	5,414,000	4,047,000	5,000,000
France	1,878,000	1,780,000	1,760,000	46,116,000	44,818,000	36,248,000
Germany	4,087,000	3,909,000	(1)	168,709,000	144,125,000	150,000,000
Italy	620,000	610,000	608,000	10,803,000	6,917,000	11,050,000
Netherlands	66,000	67,000	63,000	3,132,000	3,019,000	3,233,000
Norway	[2] 89,000	(1)	(1)	3,202,000	2,591,000	2,591,000
Roumania	1,390,000	1,405,000	1,371,000	27,339,000	25,505,000	28,688,000
Russia:						
Russia proper	24,558,000	....	....	437,634,000	....	....
Poland	1,283,000	....	....	29,859,000	....	....
Northern Caucasia	4,326,000	....	....	90,100,000	....	....
Total Russia, European	30,167,000	[3] 31,065,000	[3] 29,748,000	557,593,000	[4] 398,068,000	[4] 475,109,000
Serbia	149,000	(1)	(1)	2,866,000	3,000,000	2,250,000
Spain	3,869,000	3,404,000	3,786,000	68,772,000	72,272,000	82,763,000
Sweden	442,000	436,000	(1)	16,912,000	12,195,000	14,000,000
United Kingdom:						
England	1,470,000	1,420,000	1,152,000	49,384,000	48,205,000	35,134,000
Wales	89,000	84,000	80,000	2,792,000	2,743,000	2,479,000
Scotland	198,000	194,000	150,000	7,598,000	7,616,000	5,184,000
Ireland	173,000	172,000	142,000	8,004,000	8,073,000	5,885,000
Total United Kingdom	1,930,000	1,870,000	1,524,000	67,778,000	66,637,000	48,682,000
Total	....	....	....	1,184,343,000	963,730,000	1,043,368,000
ASIA.						
India:						
British	7,236,000	6,121,000	(1)	40,973,000	33,320,000	40,000,000
Native States	981,000	(1)	(1)	(1)	(1)	(1)
Total India	8,217,000	6,121,000	....	40,973,000	33,320,000	40,000,000
Cyprus	(1)	(1)	(1)	2,100,000	2,000,000	2,000,000
Japanese Empire:						
Japan	3,296,000	3,294,000	3,195,000	101,477,000	85,775,000	93,342,000
Formosa	6,000	(1)	(1)	82,000	60,000	75,000
Total Japanese Empire	3,302,000	....	....	101,559,000	85,835,000	93,417,000
Russia:						
Central Asia (4 governments)	447,000	....	....	5,593,000	....	....
Siberia (4 governments)	607,000	....	....	8,965,000	....	....
Transcaucasia (1 government)	2,000	....	....	28,000	....	....
Total Russia, Asiatic	1,056,000	(5)	(5)	14,586,000	(5)	(5)
Total	....	....	....	159,218,000	121,155,000	135,417,000

[1] No official statistics.
[2] Census of 1910.
[3] 63 governments of European and 10 of Asiatic Russia.
[4] 51 governments of European and 10 of Asiatic Russia.
[5] Included in "Total Russia, European."

BARLEY—Continued.

TABLE 37.—*Area and production of undermentioned countries, 1913–1915*—Continued.

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
AFRICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Algeria	3,152,000	3,131,000	2,703,000	50,031,000	35,785,000	39,866,000
Tunis	1,117,000	795,000	1,038,000	7,266,000	3,215,000	11,482,000
Union of South Africa	(1)	(1)	(1)	[2] 1,359,000	[2] 1,359,000	[2] 1,359,000
Total				58,656,000	40,359,000	52,707,000
AUSTRALASIA.						
Australia:						
Queensland	9,000	9,000	7,000	151,000	120,000	109,000
New South Wales	17,000	(1)	(1)	349,000	312,000	(1)
Victoria	72,000	(1)	(1)	1,800,000	1,870,000	(1)
South Australia	69,000	91,000	66,000	1,360,000	1,375,000	461,000
Western Australia	6,000	(1)	4,000	96,000	173,000	37,000
Tasmania	8,000	(1)	(1)	274,000	193,000	(1)
Total Australia	181,000			4,030,000	4,043,000	1,200,000
New Zealand	37,000	32,000	18,000	1,421,000	1,234,000	616,000
Total Australasia	218,000			5,451,000	5,277,000	1,816,000
Grand total				1,650,265,000	1,386,283,000	1,542,972,000

(1) No official statistics.

[2] Census of 1911.

TABLE 38.—*Barley: Total production of countries mentioned in Table 37, 1895–1915.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bushels.		*Bushels.*		*Bushels.*		*Bushels.*
1895	915,504,000	1901	1,072,195,000	1906	1,296,579,000	1911	1,373,286,000
1896	932,100,000	1902	1,229,132,000	1907	1,271,237,000	1912	1,466,977,000
1897	864,605,000	1903	1,235,786,000	1908	1,274,897,000	1913	1,650,265,000
1898	1,030,581,000	1904	1,175,784,000	1909	1,458,263,000	1914	1,386,283,000
1899	965,720,000	1905	1,180,053,000	1910	1,388,734,000	1915	1,542,972,000
1900	959,622,000						

TABLE 39.—*Barley: Average yield per acre of undermentioned countries, 1890–1914.*

Year.	United States.	Russia (European).[1]	Germany.[1]	Austria.[1]	Hungary proper.[1]	France.[2]	United Kingdom.[2]
Average:	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1890–1899	23.4	13.3	29.4	21.1		22.6	39.8
1900–1909	25.5	14.3	35.3	26.3	23.4	23.6	35.0
1905	26.8	14.3	33.3	24.0	24.5	23.4	35.9
1906	28.3	13.0	35.2	26.1	26.8	20.8	36.1
1907	23.8	14.2	38.2	27.3	23.1	24.4	36.8
1908	25.1	14.2	34.9	25.2	21.3	22.6	34.9
1909	22.5	17.9	39.5	28.4	25.1	25.4	38.9
1910	22.5	16.3	34.4	24.9	19.7	23.5	34.3
1911	21.0	14.4	37.0	27.5	26.9	25.0	34.0
1912	29.7	16.2	40.7	29.7	26.9	26.1	33.1
1913	23.8	18.5	41.3	29.7	27.6	24.5	35.1
1914	25.8		36.8		24.1	25.2	35.6
Average (1905–1914)	24.9		37.1		24.6	24.1	35.5

[1] Bushels of 48 pounds.

[2] Winchester bushels.

BARLEY—Continued.

TABLE 40.—*Barley: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.	Chicago cash price per bushel, low malting to fancy.[1] December. Low.	December. High.	Following May. Low.	Following May. High.	Domestic exports, fiscal year beginning July 1.	Imports, fiscal year beginning July 1.
	Acres.	*Bush.*	*Bushels.*	*Cents.*	*Dollars.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Bushels.*	*Bushels.*
1849			*5,167,000*								
1859			*15,826,000*								
1866	493,000	22.9	11,284,000	70.2	7,916,000	59	70	85	100		3,247,250
1867	1,131,000	22.7	25,727,000	70.1	18,028,000	150	180	227	250	9,810	3,783,966
1868	937,000	24.4	22,896,000	109.0	24,948,000	140	170	149	175	59,077	5,069,880
1869	1,026,000	27.9	28,652,000	70.8	20,298,000	74	85	50	62	255,490	6,727,597
1869			*29,761,000*								
1870	1,109,000	23.7	26,295,000	79.1	20,792,000	68	80	72	95	340,093	4,866,700
1871	1,114,000	24.0	26,718,000	75.8	20,264,000	55½	64	55	71	86,891	5,565,591
1872	1,397,000	19.2	26,846,000	68.6	18,416,000	60	70	71	85	482,410	4,244,751
1873	1,387,000	23.1	32,044,000	86.7	27,794,000	132	158	130	155	320,399	4,891,189
1874	1,581,000	20.6	32,552,000	86.0	27,998,000	120	129½	115	137	91,118	6,255,063
1875	1,790,000	20.6	36,909,000	74.1	27,368,000	81	88	62½	72½	317,781	10,285,957
1876	1,767,000	21.9	38,710,000	63.0	24,403,000	63¾	68½	80	85	1,186,129	6,702,965
1877	1,669,000	21.4	35,638,000	62.5	22,287,000	56¼	64	46½	52½	3,921,501	6,764,228
1878	1,790,000	23.6	42,246,000	57.9	24,454,000	91	100	64	73	715,536	5,720,979
1879	1,681,000	24.0	40,283,000	58.9	23,714,000	86	92	75	80	1,128,923	7,135,258
1879	*1,998,000*	*22.0*	*43,997,000*								
1880	1,843,000	24.5	45,165,000	66.6	30,091,000	100	120	95	105	885,246	9,528,616
1881	1,968,000	20.9	41,161,000	82.3	33,863,000	101	107	100	100	205,930	12,182,722
1882	2,272,000	21.5	48,954,000	62.9	30,768,000	79	82	80	80	433,005	10,050,687
1883	2,379,000	21.1	50,136,000	58.7	29,420,000	62	67	65	74	724,955	8,596,122
1884	2,609,000	23.5	61,203,000	48.7	29,779,000	53	58	65	65	629,130	9,986,507
1885	2,729,000	21.4	58,360,000	56.3	32,868,000	62	65	58	60	252,183	10,197,115
1886	2,653,000	22.4	59,428,000	53.6	31,841,000	51	54	57	57	1,305,300	10,355,594
1887	2,902,000	19.6	56,812,000	51.9	29,464,000	80	80	69	77	550,884	10,831,461
1888	2,996,000	21.3	63,884,000	59.0	37,672,000					1,440,321	11,368,414
1889	3,221,000	24.3	78,333,000	41.6	32,614,000	58	58			1,408,311	11,332,545
1889	*3,221,000*	*24.3*	*78,333,000*								
1890	3,135,000	21.4	67,168,000	62.7	42,141,000					973,062	5,078,733
1891	3,353,000	25.9	86,839,000	52.4	45,470,000					2,800,075	3,146,328
1892	3,400,000	23.6	80,097,000	47.5	38,026,000	65	67	65	65	3,035,267	1,970,129
1893	3,220,000	21.7	69,869,000	41.1	28,729,000	52	54	55	60	5,219,405	791,061
1894	3,171,000	19.4	61,400,000	44.2	27,134,000	53½	55½	51	52	1,563,754	2,116,816
1895	3,300,000	26.4	87,073,000	33.7	29,312,000	33	40	25	36	7,680,331	837,384
1896	2,951,000	23.6	69,695,000	32.3	22,491,000	22	37	24½	35	20,030,301	1,271,787
1897	2,719,000	24.5	66,685,000	37.7	25,142,000	25½	42	36	53	11,237,077	124,804
1898	2,583,000	21.6	55,792,000	41.3	23,064,000	40	50½	36	42	2,267,403	110,475
1899	2,878,000	25.5	73,382,000	40.3	29,594,000	35	45	36	44	23,661,662	189,757
1899	*4,470,000*	*26.8*	*119,635,000*								
1900	2,894,000	20.4	58,926,000	40.9	24,075,000	37	61	37	57	6,293,207	171,004
1901	4,296,000	25.6	109,933,000	45.2	49,705,000	56	63	64	72	8,714,268	57,406
1902	4,661,000	29.0	134,954,000	45.9	61,899,000	36	70	48	56	8,429,141	56,462
1903	4,993,000	26.4	131,861,000	45.6	60,166,000	42	61½	38	59	10,881,627	90,708
1904	5,146,000	27.2	139,749,000	42.0	58,652,000	38	52	40	50	10,661,655	81,020
1905	5,096,000	26.8	136,551,000	40.5	54,993,000	37	53	42	55½	17,729,360	18,049
1906	6,324,000	28.3	178,916,000	41.5	74,236,000	44	56	66	85	8,238,842	38,319
1907	6,448,000	23.8	153,597,000	66.6	102,290,000	78	102	60	75	4,349,078	199,741
1908	6,646,000	25.1	166,756,000	55.4	92,442,000	57	64½	66	75	6,580,393	2,644
1909	7,011,000	24.3	170,284,000								
1909	*7,698,000*	*22.5*	*173,321,000*	54.0	93,526,000	55	72	50	68	4,311,566	
1910[2]	7,743,000	22.5	173,832,000	57.8	100,426,000	72	90	75	115	9,399,346	
1911	7,627,000	21.0	160,240,000	86.9	139,182,000	102	130	68	132	1,585,242	
1912	7,530,000	29.7	223,824,000	50.5	112,957,000	43	77	45	68	17,536,703	
1913	7,499,000	23.8	178,189,000	53.7	95,731,000	50	79	51	66	6,644,747	
1914	7,565,000	25.8	194,953,000	54.3	105,903,000	60	75	74½	82	26,754,522	
1915	7,395,000	32.0	237,009,000	51.7	122,499,000	62	77				

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[1] Prices 1895 to 1908 for No. 3 grade.

[2] Figures adjusted to census basis.

BARLEY—Continued.

TABLE 41.—*Barley: Acreage, production, and total farm value, by States, 1915.*

[000 omitted.]

State.	Acreage.	Production.	Farm value Dec. 1.	State.	Acreage.	Production.	Farm value Dec. 1.
	Acres.	*Bushels.*	*Dollars.*		*Acres.*	*Bushels.*	*Dollars.*
Maine	5	132	99	Kansas	270	8,370	3,515
New Hampshire	1	30	24	Kentucky	6	180	139
Vermont	12	420	315	Tennessee	6	144	108
New York	85	2,720	2,040	Texas	9	252	171
Pennsylvania	8	236	177	Oklahoma	8	212	106
Maryland	5	170	119	Montana	80	2,720	1,306
Virginia	12	348	261	Wyoming	17	612	337
Ohio	30	930	502	Colorado	130	4,680	2,246
Indiana	8	224	146	New Mexico	8	264	185
Illinois	54	1,836	1,047	Arizona	35	1,295	725
Michigan	85	2,508	1,555	Utah	34	1,445	751
Wisconsin	656	23,288	13,041	Nevada	12	576	403
Minnesota	1,350	41,175	20,176	Idaho	191	7,736	4,023
Iowa	353	10,943	5,362	Washington	175	7,263	4,067
Missouri	5	125	79	Oregon	130	4,680	2,902
North Dakota	1,400	44,800	19,712	California	1,360	39,440	24,453
South Dakota	750	24,000	11,040				
Nebraska	105	3,255	1,367	United States	7,395	237,009	122,499

TABLE 42.—*Barley: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
Me	28.6	31.5	28.0	28.0	28.5	31.0	28.0	26.2	28.0	30.0	26.5	78	90	77	80	81	75	23.13	19.88
N. H	26.2	21.4	24.0	24.0	25.0	26.0	24.0	28.0	28.0	32.0	30.0	79	86	84	80	82	79	22.56	23.70
Vt	32.2	32.8	28.5	33.0	30.0	31.0	30.5	35.0	32.0	34.5	35.0	74	82	80	80	75	75	25.11	26.25
N. Y	26.8	26.3	25.0	26.0	24.8	28.3	25.0	26.0	26.7	28.0	32.0	72	97	68	69	71	75	20.01	24.00
Pa	26.1	25.0	25.5	26.0	21.8	26.5	25.0	27.5	26.0	28.0	29.5	67	65	68	71	70	75	17.94	22.12
Md	30.3	31.0	33.0	30.0	32.0	31.0	23.0	27.0	29.0	33.0	34.0	62	60	68	64	66	70	18.28	23.80
Va	27.2	28.6	29.0	28.0	28.5	29.3	23.0	25.0	26.0	26.0	29.0	70	70	75	70	80	75	18.70	21.75
Ohio	27.8	30.0	28.0	27.5	25.9	28.5	27.2	31.0	24.0	25.0	31.0	61	84	55	58	59	54	17.13	16.74
Ind	25.7	29.4	20.5	23.0	23.5	27.0	26.5	29.5	25.0	25.0	28.0	62	75	60	50	67	65	16.39	18.20
Ill	29.4	30.0	28.0	28.5	28.0	30.2	28.0	31.5	26.0	29.5	34.0	60	92	53	57	61	57	18.44	19.38
Mich	25.5	26.1	22.0	25.5	24.7	26.0	24.0	26.0	24.8	26.0	29.5	64	86	65	60	65	62	16.88	18.29
Wis	28.0	30.7	23.0	30.0	28.0	25.9	25.5	29.4	25.0	27.3	35.5	63	99	55	60	62	56	17.98	19.88
Minn	24.5	28.0	22.5	25.0	23.6	21.0	19.0	28.2	24.0	23.0	30.5	54	96	41	48	53	49	13.22	14.94
Iowa	26.7	28.3	25.5	27.0	22.0	29.5	21.9	31.0	25.0	26.0	31.0	55	93	52	55	55	49	16.21	15.19
Mo	23.8	24.2	23.0	23.0	25.0	27.0	20.0	24.8	22.0	24.0	25.0	62	75	66	60	65	63	15.27	15.75
N. Dak	21.1	25.8	18.3	19.5	21.0	5.5	19.5	29.9	20.0	19.5	32.0	48	85	35	40	45	44	9.37	14.08
S. Dak	22.0	29.0	23.0	26.5	19.5	18.2	5.4	26.0	17.5	23.0	32.0	51	88	42	46	50	46	9.12	14.72
Nebr	21.6	28.0	20.8	23.5	22.0	18.5	11.0	22.0	16.0	23.5	31.0	46	60	42	49	47	42	8.61	13.02
Kans	18.1	23.5	12.0	16.0	18.0	18.0	6.5	23.5	8.1	24.5	31.0	48	60	40	55	47	42	7.48	13.02
Ky	26.4	26.0	25.0	25.0	24.0	24.0	28.7	26.0	26.6	28.5	30.0	73	79	75	78	77	77	20.09	23.10
Tenn	24.5	23.0	20.0	25.0	24.0	23.0	28.0	26.0	25.0	27.0	24.0	76	90	80	70	82	75	20.81	18.00
Tex	23.9	24.5	17.0	24.0	19.4	30.0	18.0	29.3	24.0	25.0	28.0	79	93	78	81	70	68	20.71	19.04
Okla	21.5	29.8	18.7	23.0	23.0	30.0	10.0	20.0	9.0	25.0	26.5	55	61	50	80	53	50	10.55	13.25
Mont	33.8	33.0	38.0	35.0	38.0	28.0	34.5	36.5	31.0	30.5	34.0	57	68	53	48	53	48	18.24	16.32
Wyo	32.7	31.4	32.0	35.0	31.0	30.0	34.0	34.0	30.5	33.0	36.0	66	75	62	61	64	55	21.28	19.80
Colo	35.7	41.0	40.0	33.0	36.0	32.0	29.0	39.0	32.5	38.5	36.0	58	69	50	56	55	48	19.62	17.28
N. Mex	31.9	27.0	26.0	42.0	40.0	25.0	33.0	35.0	24.0	34.0	33.0	75	70	71	72	75	70	22.15	23.10
Ariz	38.0	42.2	35.5	38.0	40.0	36.0	36.5	40.0	39.0	36.0	37.0	78	87	87	73	60	56	29.81	20.72
Utah	41.8	44.0	39.0	45.0	40.0	36.0	43.0	45.0	38.5	45.0	42.5	57	66	59	55	50	52	24.04	22.10
Nev	40.2	36.8	40.0	30.0	38.0	40.0	40.0	41.0	41.0	47.0	48.0	77	81	87	90	65	70	32.70	33.60
Idaho	40.6	41.0	44.5	41.0	40.0	33.0	42.0	43.5	42.0	38.0	40.5	54	70	51	48	50	52	21.45	21.06
Wash	37.7	36.5	40.5	30.5	39.5	29.0	37.0	43.0	40.5	39.0	41.5	57	68	53	52	52	56	21.16	23.24
Oreg	34.0	35.0	42.0	29.0	31.5	31.5	34.0	36.0	35.0	30.0	36.0	59	65	55	55	61	62	19.80	22.32
Cal	28.0	27.2	28.9	23.5	26.5	31.0	28.0	30.0	26.0	30.0	29.0	68	85	70	68	59	62	19.45	17.98
U. S	25.6	28.3	23.8	25.1	24.3	22.5	21.0	29.7	23.8	25.8	32.0	57.4	86.9	50.5	53.7	54.3	51.7	14.60	16.57

[1] Based upon farm price Dec. 1.

BARLEY—Continued.

TABLE 43.—*Barley: Condition of crop, United States, on first of months named, 1894–1915.*

Year.	June.	July.	August.	When harvested.	Year.	June.	July.	August.	When harvested.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1894	82.2	76.8	69.8	71.5	1905	93.7	91.5	89.5	87.8
1895	90.3	91.9	87.2	87.6	1906	93.5	92.5	90.3	89.4
1896	98.0	88.1	82.9	83.1	1907	84.9	84.4	84.5	78.5
1897	87.4	88.5	87.5	86.4	1908	89.7	86.2	83.1	81.2
1898	78.8	85.7	79.3	79.2	1909	90.6	90.2	85.4	80.5
1899	91.4	92.0	93.6	86.7	1910	89.6	73.7	70.0	69.8
1900	86.2	76.3	71.6	70.7	1911	90.2	72.1	66.2	65.5
1901	91.0	91.3	86.9	83.8	1912	91.1	88.3	89.1	88.9
1902	93.6	93.7	90.2	89.7	1913	87.1	76.6	74.9	73.4
1903	91.5	86.8	83.4	82.1	1914	95.5	92.6	85.3	82.4
1904	90.5	88.5	88.3	87.4	1915	94.6	94.1	93.8	94.2

TABLE 44.—*Barley: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	54.3	52.2	77.2	71.2	73.0	67.0	62.1	58.2	49.8	44.4	62.5	75.0	56.9	60.6
February	62.9	52.4	80.6	68.3	76.0	72.5	67.0	55.7	59.4	45.5	76.5	70.8	65.4	60.4
March	67.7	51.1	84.9	72.0	81.0	68.0	72.6	54.4	61.9	45.4	80.2	73.2	73.2	57.2
April	64.7	51.7	81.0	72.4	73.4	70.2	72.3	53.5	59.9	44.3	70.8	66.5	68.1	61.0
May	63.8	49.3	87.7	74.7	78.0	67.5	69.5	53.6	60.3	43.1	71.3	70.7	65.6	55.6
June	62.0	49.1	83.0	71.9	78.2	71.8	68.6	53.4	60.1	43.4	85.2	75.3	61.2	54.9
July	55.8	47.5	85.6	73.1	76.0	75.2	66.4	48.9	56.0	42.2	70.8	64.0	50.4	53.5
August	56.7	45.1	81.6	69.7	78.0	73.8	66.8	53.1	56.8	40.3	57.0	50.0	51.8	47.9
September	51.9	52.5	80.2	75.4	74.0	75.0	58.8	60.3	46.7	52.4	56.5	61.5	55.6	48.5
October	46.8	51.8	72.5	74.7	69.2	74.0	52.6	61.2	40.1	46.4	60.0	60.0	52.9	54.9
November	50.1	51.7	73.5	73.8	78.0	72.0	55.3	59.1	43.0	47.7	53.7	56.2	57.3	53.8
December	51.7	54.3	75.0	72.1	73.4	74.9	56.6	62.2	46.2	49.8	66.5	69.5	58.5	57.0
Average	53.7	51.5	77.7	72.9	74.7	72.6	60.4	58.4	47.3	47.1	62.5	62.5	57.5	54.7

BARLEY—Continued.

TABLE 45.—*Barley: Wholesale price per bushel, 1900–1915.*

Date.	Cincinnati.		Chicago.		Milwaukee.		Minneapolis.		San Francisco.	
	Spring malt.		Low malting to fancy.		No. 3.		All grades.		Feed (per 100 lbs.).[1]	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Dolls.*	*Dolls.*
1900	53	78	34	67	33	56	32	59	0.67½	0.75
1901	67	80	38	66	36	62	25	62	.73¾	.85
1902	68	88	37	73	......	......	30	70	.80	1.32½
1903	60	72	36	62	35	60	32	68	.90	1.22½
1904	58	74	30	61	34	57	28	56	.95	1.15
1905	57	65	35	55	36	49	30	48	1.02½	1.35
1906	58	75	38	58	37	54	31	51	......	......
1907	63	132	45	110	44	108	40	108	1.12½	1.72½
1908	71	132	49	106	48	102	44	102	1.22½	1.57½
1909	71	90	50	82½	50	82½	40	79	1.35	1.70
1910	76	103	50	90	56	88	48	76½	.95	1.50
1911	101	137	70	139	72	129	58	120	1.10	1.98½
1912	69	146	40	140	54	136	33	130	1.15	1.95
1913	72	92	42	85	58	80	39	73	1.22½	1.50
1914	75	105	49	82	51½	82	40	76	.90	1.32½
1915.										
January	72	90	66	88	70½	88	58	83	1.25	1.60
February	86	90	73	91	78	93	64	86	1.42½	1.62½
March	79	90	71	89	74½	86	62	81	1.25	1.47½
April	76	82	71	84	76	80½	64	76	1.25	1.47½
May	76	102	74½	82	75½	78½	67	75	1.11¼	1.30
June	86	98	68	79	71	77½	62	71	1.00	1.12½
July	86	98	69	79	72½	79	63	73	1.00	1.20
August	88	98	54	85	61	81	45	78	1.15	1.30
September	76	102	51	65	54	60	42	57	1.12½	1.20
October	70	86	53	65	56	62	47	57	1.15	1.30
November	70	76	56	73	59	68	50	62	1.22½	1.32½
December	76	79	62	77	67	73½	56	67½	1.25	1.32½
Year	70	102	51	91	54	93	42	86	1.00	1.62½

[1] No. 1 brewing to 1902 and 1907.

BARLEY—Continued.

TABLE 46.—*Barley and malt: International trade, calendar years 1912–1914.*

[See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	Barley.			Malt.			Barley and malt in terms of barley.		
	1912	1913	1914 (prelim.)	1912	1913	1914 (prelim.)	1912	1913	1914 (prelim.)
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Argentina	656	1,871	1,152	....	....	....	656	1,871	1,152
Austria-Hungary	9,522	8,190	....	11,996	12,189	....	20,428	19,271	....
Belgium	4,737	2,612	....	231	218	....	4,946	2,811	....
British India	31,843	10,069	1,290	....	....	....	31,843	10,069	1,290
Bulgaria	819	819	....	....	....	....	819	819	....
Canada	4,788	13,906	6,838	24	3	5	4,810	13,909	6,843
Chile	476	427	2,839	19	23	233	494	449	2,860
China	655	738	524	....	....	....	655	738	524
Denmark	3,552	3,566	3,380	112	117	....	3,654	3,673	....
France	669	438	167	48	19	....	712	455	....
Germany	53	280	....	1,255	1,198	....	1,194	1,369	....
Netherlands	23,956	31,993	13,265	755	449	....	24,642	32,402	....
Roumania	10,928	[1] 10,928	....	3	[1] 3	....	10,930	[1] 10,930	....
Russia	126,927	180,344	90,747	198	197	....	127,107	180,523	90,747
United Kingdom	102	48	85	952	806	898	967	781	902
United States	8,195	12,782	17,208	150	487	728	8,332	13,225	17,871
Other countries	13,456	15,957	....	6	11	....	13,460	15,967	....
Total	241,334	294,968	....	15,748	15,720	....	255,861	309,262	....

IMPORTS.

Argentina	3	4	1	1,444	1,597	1,134	1,316	1,456	1,032
Austria-Hungary	331	351	....	....	2	....	331	353	....
Belgium	21,830	17,336	....	674	734	....	22,443	18,004	....
Brazil	2	1	1	1,062	1,364	702	967	1,241	639
British South Africa	2	2	1	395	348	289	361	319	265
Canada	7	38	39	58	358	107	59	363	136
Cuba	328	273	285	....	....	....	328	273	285
Denmark	578	1,933	....	55	58	....	628	1,986	....
Egypt	415	1,338	....	54	534	42	464	1,824	512
France	6,290	5,330	4,757	103	108	....	6,384	5,428	....
Finland	254	392	....	267	278	....	497	645	....
Germany	136,383	148,728	....	2,948	3,532	....	139,063	151,939	....
Italy	878	728	82	....	....	1,034	878	728	82
Netherlands	30,747	40,783	21,445	3,612	4,183	....	34,030	44,585	....
Norway	3,763	3,851	3,747	108	157	241	3,862	3,994	3,966
Russia	791	1,106	64	23	58	15	812	1,158	77
Switzerland	1,126	1,190	769	3,810	3,302	....	4,590	4,192	....
United Kingdom	45,899	52,331	36,442	79	146	137	45,970	52,464	36,547
Other countries	2,680	1,216	....	570	660	....	3,198	1,816	....
Total	252,307	276,931	....	15,262	17,420	....	266,181	292,767	....

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[1] Year preceding.

RYE.

TABLE 47.—*Rye: Area and production of undermentioned countries, 1913–1915.*

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
NORTH AMERICA.						
United States	*Acres.* 2,557,000	*Acres.* 2,541,000	*Acres.* 2,856,000	*Bushels.* 41,381,000	*Bushels.* 42,779,000	*Bushes.* 49,190,000
Canada:						
Quebec	10,000	9,000	9,000	156,000	156,000	169,000
Ontario	85,000	78,000	78,000	1,567,000	1,341,000	1,602,000
Manitoba	5,000	5,000	6,000	103,000	100,000	129,000
Saskatchewan	3,000	3,000	3,000	68,000	54,000	72,000
Alberta	16,000	16,000	17,000	398,000	360,000	500,000
Other	(1)	(1)	(1)	8,000	6,000	6,000
Total Canada	119,000	111,000	113,000	2,300,000	2,017,000	2,478,000
Mexico	(2)	(2)	(2)	70,000	70,000	70,000
Total	....	....	....	43,751,000	44,866,000	51,738,000
SOUTH AMERICA.						
Argentina	99,000	227,000	228,000	1,417,000	3,346,000	1,811,000
Chile	7,000	6,000	(2)	147,000	151,000	150,000
Uruguay	(1)	(1)	(1)	1,000	5,000	1,000
Total	....	....	....	1,565,000	3,502,000	1,962,000
EUROPE.						
Austria-Hungary:						
Austria	4,852,000	(2)	(2)	109,093,000	95,000,000	105,000,000
Hungary	2,668,000	2,638,000	2,625,000	52,256,000	42,410,000	45,975,000
Croatia-Slavonia	167,000	(2)	(2)	2,553,000	2,000,000	2,500,000
Bosnia-Herzegovina	65,000	(2)	(2)	627,000	500,000	600,000
Total Austria-Hungary	7,752,000	....	....	164,529,000	139,910,000	154,075,000
Belgium	641,000	645,000	(2)	22,463,000	21,000,000	18,000,000
Bulgaria	515,000	501,000	(2)	9,401,000	6,976,000	7,622,000
Denmark	607,000	(2)	521,000	16,637,000	10,905,000	12,989,000
Finland	(2)	(2)	(2)	10,289,000	10,806,000	10,000,000
France	2,905,000	2,614,000	2,603,000	49,452,000	43,884,000	40,307,000
Germany	15,849,000	15,565,000	(2)	481,169,000	410,478,000	475,000,000
Italy	307,000	304,000	294,000	5,589,000	5,260,000	4,401,000
Netherlands	562,000	563,000	549,000	16,895,000	13,471,000	13,727,000
Norway	[3] 37,000	(2)	(2)	973,000	1,046,000	1,045,000
Roumania	224,000	208,000	187,000	3,711,000	1,959,000	2,911,000
Russia:						
Russia proper	66,008,000	....	....	872,711,000	....	....
Poland	5,361,000	....	....	91,653,000	....	....
Northern Caucasia	513,000	....	....	7,596,000	....	....
Total Russia, European	71,882,000	[4] 69,517,000	[4] 69,024,000	971,960,000	[5] 806,000,000	[5] 861,097,000
Serbia	74,000	(2)	(2)	937,000	1,000,000	800,000
Spain	1,917,000	1,887,000	1,858,000	27,916,000	23,950,000	28,664,000
Sweden	911,000	981,000	(2)	22,266,000	27,599,000	25,000,000
United Kingdom	64,000	67,000	62,000	1,750,000	1,800,000	1,700,000
Total	....	....	....	1,805,937,000	1,526,044,000	1,657,338,000
ASIA.						
Russia:						
Central Asia (4 governments)	129,000	....	....	792,000	....	....
Siberia (4 governments)	2,749,000	....	....	28,148,000	....	....
Transcaucasia (1 government)	1,000	....	....	8,000	....	....
Total Russia, Asiatic	2,879,000	(6)	(6)	28,948,000	(6)	(6)

[1] Less than 500 acres.
[2] No official statistics.
[3] Census of 1910.
[4] 63 governments of European and 10 of Asiatic Russia.
[5] 51 governments of European and 10 of Asiatic Russia.
[6] Included in "Total Russia, European."

RYE—Continued.

TABLE 47.—*Rye: Area and production of undermentioned countries, 1913–1915*—Continued.

Country.	Area.			Production.		
	1913	1914	1915	1913	1914	1915
AUSTRALASIA.						
Australia:	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Queensland	(1)	(2)	(2)	2,000	(2)	(2)
New South Wales	3,000	(2)	(2)	42,000	(2)	(2)
Victoria	1,000	2,000	(2)	18,000	20,000	(2)
South Australia	1,000	(2)	(2)	10,000	13,000	6,000
Western Australia	1,000	(2)	(2)	4,000	(2)	(2)
Tasmania	1,000	(2)	(2)	20,000	(2)	(2)
Total Australia	7,000	(2)	(2)	96,000	100,000	30,000
New Zealand	(2)	(2)	(2)	90,000	90,000	90,000
Total Australasia				186,000	190,000	120,000
Grand total				1,880,387,000	1,574,602,000	1,711,158,000

[1] Less than 500 acres.

[2] No official statistics.

TABLE 48.—*Rye: Total production of countries mentioned in Table 47, 1895–1915.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bushels.		*Bushels.*		*Bushels.*		*Bushels.*
1895	1,468,212,000	1901	1,416,022,000	1906	1,433,395,000	1911	1,753,933,000
1896	1,499,250,000	1902	1,647,845,000	1907	1,538,778,000	1912	1,886,517,000
1897	1,300,645,000	1903	1,659,961,000	1908	1,590,057,000	1913	1,880,387,000
1898	1,461,171,000	1904	1,742,112,000	1909	1,747,123,000	1914	1,574,602,000
1899	1,583,179,000	1905	1,495,751,000	1910	1,673,473,000	1915	1,711,158,000
1900	1,557,634,000						

TABLE 49.—*Rye: Average yield per acre of undermentioned countries, 1890–1914.*

Year.	United States.	Russia (European).[1]	Germany.[1]	Austria.[1]	Hungary proper.[1]	France.[2]	Ireland.[1]
Average:	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1890–1899	13.9	10.4	20.9	16.1		17.6	25.2
1900–1909	15.7	11.5	25.6	19.0	17.6	17.1	27.5
1905	16.5	10.1	24.9	20.2	19.4	18.5	27.0
1906	16.7	8.8	25.1	19.9	19.8	16.3	27.6
1907	16.4	10.8	25.8	18.9	16.0	18.2	27.0
1908	16.4	11.0	28.0	22.0	17.5	16.8	29.2
1909	13.4	12.6	28.8	22.3	17.8	18.1	30.8
1910	16.0	12.3	27.1	21.3	18.9	14.7	30.3
1911	15.6	10.5	28.2	20.9	18.7	15.8	29.0
1912	16.8	14.3	29.5	23.3	19.4	16.5	30.6
1913	16.2	13.5	30.4	22.0	19.6	17.0	30.0
1914	16.8		26.4		16.1	16.8	29.4
Average (1905–1914)	16.1		27.4		18.3	16.9	29.1

[1] Bushels of 56 pounds.

[2] Winchester bushels.

RYE—Continued.

Table 50.—*Rye: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

Note.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage harvested.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.	Chicago cash price per bushel, No. 2.				Domestic exports, including rye flour, fiscal year beginning July 1.
						December.		Following May.		
						Low.	High.	Low.	High.	
	Acres.	*Bush.*	*Bushels.*	*Cents.*	*Dollars.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Bushels.*
1849			*14,189,000*							
1859			*21,101,000*							
1866	1,548,000	13.5	20,865,000	82.2	17,150,000			142	150	234,971
1867	1,689,000	13.7	23,184,000	100.4	23,281,000	132	157	173	185	564,901
1868	1,651,000	13.6	22,505,000	94.9	21,349,000	106½	118	100	115½	92,869
1869	1,658,000	13.6	22,528,000	77.0	17,342,000	66	77½	78	83½	199,450
1869			*16,919,000*							
1870	1,176,000	13.2	15,474,000	73.2	11,327,000	67	74	81	91	87,174
1871	1,070,000	14.4	15,366,000	71.1	10,928,000	62	63¾	75	93	832,689
1872	1,049,000	14.2	14,889,000	67.6	10,071,000	57½	70	68½	70	611,749
1873	1,150,000	13.2	15,142,000	70.3	10,638,000	70	81	91	102	1,923,404
1874	1,117,000	13.4	14,991,000	77.4	11,610,000	93	99½	103	107½	267,058
1875	1,360,000	13.0	17,722,000	67.1	11,894,000	67	68¾	61½	70½	589,159
1876	1,468,000	13.9	20,375,000	61.4	12,505,000	65½	73	70	92½	2,234,856
1877	1,413,000	15.0	21,170,000	57.6	12,202,000	55½	56½	54	60	4,249,684
1878	1,623,000	15.9	25,843,000	52.5	13,566,000	44	44½	47	52	4,877,821
1879	1,625,000	14.5	23,639,000	65.6	15,507,000	73½	81	73½	85	2,943,894
1879	*1,842,000*	*10.8*	*19,832,000*							
1880	1,768,000	13.9	24,541,000	75.6	18,565,000	82	91½	115	118	1,955,155
1881	1,789,000	11.6	20,705,000	93.3	19,327,000	96½	98	77	83	1,003,609
1882	2,228,000	13.4	29,960,000	61.5	18,439,000	57	58½	62	67	2,206,212
1883	2,315,000	12.1	28,059,000	58.1	16,301,000	56½	60	60½	62½	6,247,590
1884	2,344,000	12.2	28,640,000	51.9	14,857,000	51	52	68	73	2,974,390
1885	2,129,000	10.2	21,756,000	57.9	12,595,000	58½	61	58	61	216,699
1886	2,130,000	11.5	24,489,000	53.8	13,181,000	53	54½	54½	56½	377,302
1887	2,053,000	10.1	20,693,000	54.5	11,283,000	55½	61½	63	68	94,827
1888	2,365,000	12.0	28,415,000	58.8	16,722,000	50	52	39	41½	309,266
1889	2,171,000	13.1	28.420,000	42.3	12,010,000	44	45½	49½	54	2,280,975
1889	*2,172,000*	*13.1*	*28,421,000*							
1890	2,142,000	12.0	25,807,000	62.9	16,230,000	64½	68½	83	92	358,263
1891	2,176,000	14.6	31,752,000	77.4	24,589,000	86	92	70½	79	12,068,628
1892	2,164,000	12.9	27,979,000	54.2	15,160,000	46	51	50½	62	1,493,924
1893	2,038,000	13.0	26,555,000	51.3	13,612,000	45	47½	44½	48	249,152
1894	1,945,000	13.7	26,728,000	50.1	13,395,000	47½	49	62½	67	32,045
1895	1,890,000	14.4	27,210,000	44.0	11,965,000	32	35¾	33	36½	1,011,128
1896	1,831,000	13.3	24,369,000	40.9	9,961,000	37	42½	32¾	35½	8,575,663
1897	1,704,000	16.1	27,363,000	44.7	12,240,000	45¾	47	48	75	15,562,035
1898	1,643,000	15.6	25,658,000	46.3	11,875,000	52½	55½	56½	62	10,169,822
1899	1,659,000	14.4	23,962,000	51.0	12,214,000	49	52	53	56¼	2,382,012
1899	*2,054,000*	*12.4*	*25,569,000*							
1900	1,591,000	15.1	23,996,000	51.2	12,295,000	45¾	49¾	51½	54	2,345,512
1901	1,988,000	15.3	30,345,000	55.7	16,910,000	59	65¾	54½	58	2,712,077
1902	1,979,000	17.0	33,631,000	50.8	17,081,000	48	49¾	48	50½	5,445,273
1903	1,907,000	15.4	29,363,000	54.5	15,994.000	50½	52½	69¾	78	784,068
1904	1,793,000	15.2	27,242,000	68.8	18,748,000	73	75	70	84	29,749
1905	1,730,000	16.5	28,486,000	61.1	17,414,000	64	68	58	62	1,387,826
1906	2,002,000	16.7	33,375,000	58.9	19,671,000	61	65	69	87½	769,717
1907	1,926,000	16.4	31,566,000	73.1	23,068,000	75	82	79	86	2,444,588
1908	1,948,000	16.4	31,851,000	73.6	23,455,000	75	77½	83	90	1,295,701
1909	2,006,000	16.1	32,239,000							
1909	*2,196,000*	*13.4*	*29,520,000*	71.8	21,164,000	72	80	74	80	242,262
1910[1]	2,185,000	16.0	34,897,000	71.5	24,953,000	80	82	90	113	40,123
1911	2,127,000	15.6	33,119,000	83.2	27,557,000	91	94	90	95½	31,384
1912	2,117,000	16.8	35,664,000	66.3	23,636,000	58	64	60	64	1,854,738
1913	2,557,000	16.2	41,381,000	63.4	26,220,000	61	65	62	67	2,272,492
1914	2,541,000	16.8	42,779.000	86.5	37,018,000	107½	112½	115	122	13,026,778
1915	2,856,000	17.2	49,190,000	83.9	41,295,000	94½	98½			

[1] Figures adjusted to census basis.

RYE—Continued.

TABLE 51.—*Rye: Acreage, production, and total farm value, by States, 1915.*

[000 omitted.]

State.	Acreage.	Production.	Farm value Dec. 1.	State.	Acreage.	Production.	Farm value Dec 1.
	Acres.	*Bushels.*	*Dollars.*		*Acres.*	*Bushels.*	*Dollars.*
Vermont	1	17	14	North Dakota	180	2,700	2,133
Massachusetts	3	60	61	South Dakota	90	1,755	1,334
Connecticut	7	150	153	Nebraska	200	3,500	2,555
New York	150	2,805	2,609	Kansas	50	800	608
New Jersey	71	1,420	1,306	Kentucky	24	288	271
Pennsylvania	274	4,932	4,143	Tennessee	18	189	195
Delaware	1	16	16	Alabama	4	40	54
Maryland	24	396	348	Texas	2	34	35
Virginia	70	1,015	944	Oklahoma	6	81	62
West Virginia	16	224	208	Arkansas	1	10	10
North Carolina	50	575	604	Montana	10	225	146
South Carolina	3	30	45	Wyoming	9	180	162
Georgia	13	120	168	Colorado	30	525	368
Ohio	100	1,750	1,452	Utah	13	202	131
Indiana	150	2,400	1,968				
Illinois	49	906	752	Idaho	3	60	41
Michigan	390	6,045	5,138	Washington	8	146	110
Wisconsin	420	7,770	6,760	Oregon	23	414	373
Minnesota	300	5,850	4,738	California	8	112	101
Iowa	60	1,110	888	United States	2,856	49,190	41,295
Missouri	25	338	291				

TABLE 52.—*Rye: Condition of crop, United States, on first of months named, 1891–1916.*

Year.	December of previous year.	April.	May.	June.	When harvested.	Year.	December of previous year.	April.	May.	June.	When harvested.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1891	99.0	95.4	97.2	95.4	93.9	1904	92.7	82.3	81.2	86.3	88.9
1892	88.8	87.0	88.9	91.0	92.8	1905	90.5	92.1	93.5	94.0	93.2
1893	89.4	85.7	82.7	84.6	85.3	1906	95.4	90.9	92.9	89.9	91.3
1894	94.6	94.4	90.7	93.2	87.0	1907	96.2	92.0	88.0	88.1	89.7
1895	96.2	87.0	88.7	85.7	80.7	1908	91.4	89.1	90.3	91.3	91.2
1896	88.1	82.9	87.7	85.2	88.4	1909	87.6	87.2	88.1	89.6	91.4
1897	99.8	88.9	88.0	89.9	93.4	1910	94.1	92.3	91.3	90.6	87.5
1898	91.0	92.1	94.5	97.1	94.6	1911	92.6	89.3	90.0	88.6	85.0
1899	98.9	84.9	85.2	84.5	85.6	1912	93.3	87.9	87.5	87.7	88.2
1900	98.2	84.8	88.5	87.6	80.4	1913	93.5	89.3	91.0	90.9	88.6
1901	99.1	93.1	94.6	93.9	93.0	1914	95.3	91.3	93.4	93.6	92.9
1902	89.9	85.4	83.4	88.1	90.2	1915	93.6	89.5	93.3	92.0	92.0
1903	98.1	97.9	93.3	90.6	89.5	1916	91.5	......	......	......	....

RYE—Continued.

Table 53.—*Rye: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
Vt	18.0	17.4	17.0	15.0	15.5	17.5	22.5	20.0	18.0	20.0	17.0	86	95	90	90	80	85	17.29	14.45
Mass	17.3	15.0	16.5	16.5	16.2	17.0	16.0	18.5	18.5	19.0	20.0	94	95	100	98	101	102	17.40	20.40
Conn	18.8	18.0	17.0	18.5	18.7	20.0	18.5	17.5	19.3	19.0	21.5	89	93	92	92	98	102	17.38	21.93
N. Y	17.3	17.6	16.5	16.5	17.0	18.3	16.7	16.5	17.2	17.7	18.7	80	89	76	75	89	93	13.92	17.39
N. J	17.6	17.2	17.5	16.2	16.3	18.0	16.4	17.5	18.0	18.5	20.0	79	83	79	80	82	92	14.17	18.40
Pa	16.9	17.4	16.7	16.5	15.3	17.0	15.1	17.5	17.5	18.0	18.0	77	80	77	74	83	84	13.17	15.12
Del	15.2	15.0	16.5	15.5	14.0	15.5	15.0	14.0	14.0	17.5	15.5	82	95	81	79	92	99	12.69	15.34
Md	15.4	14.7	16.0	15.0	14.1	16.1	14.5	15.5	14.4	17.0	16.5	78	86	80	76	86	88	12.50	14.52
Va	13.0	13.4	14.0	12.5	12.3	13.5	11.5	12.5	12.3	13.0	14.5	83	89	85	81	90	93	10.66	13.48
W. Va	13.0	12.2	12.0	13.0	13.5	12.9	11.0	13.0	13.5	14.5	14.0	86	90	84	87	90	93	11.44	13.02
N. C	10.1	11.0	10.5	8.9	9.4	10.0	10.0	9.3	10.3	10.0	11.5	100	100	105	98	105	105	10.09	12.08
S. C	9.9	8.5	10.0	9.6	9.8	10.0	10.0	9.5	10.5	11.5	10.0	142	145	145	150	150	151	15.18	15.10
Ga	9.2	8.3	9.0	8.7	9.0	10.4	9.5	9.2	9.5	9.3	9.2	135	138	140	135	150	140	13.46	12.88
Ohio	16.9	19.5	17.2	16.5	17.2	16.5	15.5	15.5	16.5	17.0	17.5	75	85	75	69	81	83	12.37	14.52
Ind	15.7	17.0	17.0	15.0	16.5	15.8	13.7	14.5	15.2	16.3	16.0	72	80	68	62	85	82	10.97	13.12
Ill	17.2	17.0	18.5	17.1	17.8	17.4	16.8	16.0	16.5	16.0	18.5	73	81	70	65	85	83	12.30	15.36
Mich	14.9	14.5	14.5	15.5	15.5	15.3	14.6	13.3	14.3	16.0	15.5	73	85	65	62	91	85	10.98	13.18
Wis	17.4	17.0	18.0	19.0	16.3	16.0	17.0	18.3	17.5	16.5	18.5	72	84	61	57	91	87	12.36	16.10
Minn	19.1	19.3	18.5	18.5	19.0	17.0	18.7	23.0	19.0	18.8	19.5	65	78	50	48	89	81	12.56	15.80
Iowa	18.5	18.6	17.8	20.0	17.8	18.5	18.0	19.0	18.2	19.0	18.5	66	77	62	60	77	80	12.61	14.80
Mo	14.5	15.8	15.4	12.8	15.0	15.0	14.1	14.8	15.0	14.0	13.5	78	84	80	75	87	86	11.67	11.61
N. Dak	16.1	18.7	16.0	18.0	18.4	8.5	16.6	18.0	14.4	17.1	15.0	62	76	47	45	84	79	9.46	11.85
S. Dak	16.7	18.8	17.0	17.5	17.5	17.0	10.0	19.5	13.2	17.0	19.5	62	76	52	50	78	76	9.59	14.82
Nebr	16.4	21.0	17.0	16.0	16.5	16.0	13.0	16.0	14.5	16.0	17.5	62	75	56	60	74	73	9.77	12.78
Kans	14.6	16.0	12.0	13.3	14.2	14.0	11.0	15.9	14.0	20.0	16.0	72	81	68	75	80	76	11.29	12.16
Ky	13.1	15.2	13.7	13.5	12.7	13.0	12.0	13.0	12.4	13.7	12.0	87	94	88	87	95	94	11.52	11.28
Tenn	11.6	13.0	10.0	12.5	10.7	11.0	11.9	11.5	12.0	13.0	10.5	94	99	98	99	98	103	11.56	10.82
Ala	11.2	12.5	10.5	10.0	11.3	12.0	10.0	11.5	11.0	13.0	10.0	125	125	134	140	110	135	14.40	13.50
Tex	13.6	14.6	10.0	15.5	11.2	11.5	10.0	16.6	15.0	14.8	17.0	103	107	110	101	99	103	14.12	17.51
Okla	12.5	13.9	10.0	13.5	13.5	13.7	9.5	12.0	9.5	16.0	13.5	83	104	87	86	95	77	10.96	10.40
Ark	10.7	12.0	9.9	10.0	10.5	12.0	10.0	10.5	11.5	10.5	10.5	96	90	105	95	105	100	10.74	10.50
Mont	22.2	20.5	22.0	20.0	29.0	20.0	23.0	23.5	21.0	21.0	22.5	67	72	60	55	70	65	14.10	14.62
Wyo	20.2	19.0	21.5	22.0	26.0	18.5	20.0	19.0	19.0	17.0	20.0	77	90	65	64	81	90	14.25	18.00
Colo	17.6	20.0	20.5	15.5	22.0	14.0	12.0	19.5	17.0	17.5	17.5	65	70	55	60	65	70	10.02	12.25
Utah	18.0	24.0	20.0	15.5	22.0	18.5	15.5	15.0	17.0	17.5	15.5	66	70	68	60	60	65	10.87	10.08
Idaho	21.8	25.2	24.7	20.0	21.5	20.0	22.5	22.0	22.0	20.0	20.0	65	67	60	58	67	68	13.53	13.60
Wash	20.3	19.6	21.5	19.5	21.0	20.5	22.0	20.0	21.0	19.7	18.2	78	80	65	60	85	75	15.64	13.65
Oreg	17.0	17.2	16.0	18.0	17.0	15.1	19.5	16.0	17.5	16.0	18.0	87	90	70	75	100	90	14.59	16.20
Cal	15.5	12.8	19.0	12.0	13.8	17.0	17.0	17.6	15.0	17.0	14.0	86	85	90	75	85	90	14.12	12.60
U. S	16.4	16.7	16.4	16.4	16.1	16.0	15.6	16.8	16.2	16.8	17.2	73.4	83.2	66.3	63.4	86.5	83.9	12.07	14.46

[1] Based upon farm price Dec. 1.

RYE—Continued.

TABLE 54.—*Rye: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	90.2	62.5	88.9	74.9	92.7	85.3	93.5	59.8	87.7	51.9	97.1	88.0	76.1	67.0
February	100.6	61.7	96.8	74.7	96.0	85.1	105.7	57.8	99.3	51.9	101.7	86.8	84.7	68.0
March	105.4	61.9	106.7	73.1	102.5	85.4	108.3	58.6	102.8	51.9	108.6	95.7	89.6	69.8
April	100.4	63.0	101.3	75.0	95.4	87.5	101.9	58.9	99.2	53.5	105.4	91.5	93.9	70.2
May	101.9	62.9	102.6	75.7	95.4	86.4	103.0	59.8	101.0	51.7	103.1	85.7	100.9	72.0
June	98.1	64.4	99.5	75.8	98.1	86.9	98.6	60.4	96.6	55.6	100.9	85.0	95.2	73.2
July	93.7	63.1	95.1	75.1	95.3	87.8	93.3	60.4	94.6	52.2	92.4	76.0	82.1	67.1
August	89.0	61.0	92.8	71.9	92.5	83.6	88.5	57.3	87.0	51.1	94.9	78.8	81.4	78.9
September	85.5	75.4	87.9	80.0	92.2	89.6	85.5	74.6	83.2	70.7	90.1	86.0	78.5	69.3
October	81.7	79.0	86.0	82.1	90.4	90.3	83.0	78.9	76.0	74.6	94.3	92.8	71.4	75.1
November	85.7	80.1	86.5	84.5	95.1	90.2	86.8	80.1	83.2	75.4	98.7	96.2	71.4	73.4
December	83.9	86.5	88.3	84.7	98.2	97.1	85.2	89.2	78.2	83.2	97.7	96.9	76.8	77.0
Average	90.1	71.6	91.8	78.8	94.3	88.3	91.1	70.0	85.6	67.3	96.8	88.1	79.8	72.0

TABLE 55.—*Rye: Wholesale price per bushel, 1900–1915.*

Date.	Philadelphia.		Cincinnati.		Chicago.		Duluth.		San Francisco (per 100 lbs.).	
			No. 2.		No. 2.					
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Dolls.*	*Dolls.*
1900	....	....	51½	67	44½	60½	46	60½	....	....
1901	58	71½	45	73	46¾	65¾	46½	62½	0.75	0.87½
1902	54	71	51	71½	48	67½	46	64	.77½	1.15
1903	56	68½	54	63	48	60	48	55½	1.10	1.30
1904	65	96	61	87	51	81	54½	80	1.25	1.47½
1905	63	90¼	56	87	57½	84	55½	78	1.40	1.75
1906	55½	67	58	72½	55½	68	53	61	....	....
1907	75	100	68	93	60	91¼	57	86	1.35	1.52½
1908	80	95	78	89	72	87	60	80	1.35	1.52½
1909	75	95	70	92	67	91	62	88	1.55	2.05
1910	75	92	73	87	72	82	67	78½	1.50	2.00
1911	78	107	79	101	80	113	72	100	1.40	1.60
1912	68	105	62	100	58	96½	53	91½	1.40	1.72½
1913	65	77	60	72	58	70½	50	65	1.32½	1.65
1914	65	125	60	115	55	112½	50	107	1.30	1.65
1915.										
January	115	125	113½	130	111½	126½	106	123½	1.60	2.25
February	125	130	118	133	115	131	113	128	2.00	2.25
March	125	130	108	120	112	121	106	119	2.00	2.25
April	110	120	110	116	115½	118	106	116	2.00	2.25
May	110	115	112	120	115	122	110	118	2.00	2.25
June	105	110	107	113	114	119	110	114	(1)	(1)
July	92	99	98	112	96	119	95	111	(1)	(1)
August	90	95	98	105	96	119	91	107	1.55	1.65
September	91	105	92	102	91	100½	89	96	1.45	1.60
October	95	112	98	107	95	107	90	99	1.45	1.60
November	100	110	98	107	94	103	87	96	1.55	1.60
December	105	112	95	104	94½	98½	87	93	1.55	1.60
Year	90	130	92	133	91	131	89	128	1.45	2.25

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[1] Nominal.

RYE—Continued.

TABLE 56.—*Rye (including flour): International trade, calendar years 1912–1914.*

[See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).
	Bushels.	*Bushels.*	*Bushels.*
Argentina	445	861	451
Belgium	1,155	673	....
Bulgaria	2,029	2,029	....
Canada	1	127	146
Denmark	296	319	5
Germany	42,784	51,979	....
Netherlands	16,423	20,291	7,357
Roumania	2,481	[1] 2,481	....
Russia	26,359	33,170	20,209
United States	501	2,034	8,164
Other countries	582	480	....
Total	93,056	114,444	....

IMPORTS.

Country.	1912	1913	1914 (prelim.).
Austria-Hungary	1,336	268	....
Belgium	5,309	6,372	....
Denmark	8,170	9,846	5,082
Finland	12,873	15,813	....
France	3,688	3,712	848
Germany	12,501	13,946	....
Italy	623	1,245	378
Netherlands	27,714	32,273	14,289
Norway	9,168	11,088	8,014
Russia	3,455	7,769	5,449
Sweden	4,708	4,446	2,133
Switzerland	750	661	267
United Kingdom	1,965	2,276	2,073
Other countries	713	886	....
Total	92,973	110,601	....

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[1] Year preceding.

BUCKWHEAT.

TABLE 57.—*Buckwheat: Acreage, production, and value in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage (thousands of acres).	Average yield per acre (bushels).	Production (thousands of bushels).	Average farm price Dec. 1 (cents per bushel).	Farm value Dec. 1 (thousands of dollars).
1849	....	....	*8,957*	....	....
1859	....	....	*17,572*	....	....
1866	1,046	21.8	22,792	67.6	15,413
1867	1,228	17.4	21,359	78.7	16,812
1868	1,114	17.8	19,864	78.0	15,490
1869	1,029	16.9	17,431	71.9	12,535
1869	....	....	*9,822*	....	....
1870	537	18.3	9,842	70.5	6,937
1871	414	20.1	8,329	74.5	6,208
1872	448	18.1	8,134	73.5	5,979
1873	454	17.3	7,838	75.0	5,879
1874	453	17.7	8,017	72.9	5,844
1875	576	17.5	10,082	62.0	6,255
1876	666	14.5	9,669	66.6	6,436
1877	650	15.7	10,177	66.9	6,808
1878	673	18.2	12,247	52.6	6,441
1879	640	20.5	13,140	59.8	7,856
1879	*848*	*13.9*	*11,817*	....	....
1880	823	17.8	14,618	59.4	8,682
1881	829	11.4	9,486	86.5	8,206
1882	847	13.0	11,019	73.0	8,039
1883	857	8.9	7,669	82.2	6,304
1884	879	12.6	11,116	58.9	6,549
1885	914	13.8	12,626	55.9	7,057
1886	918	12.9	11,869	54.5	6,465
1887	911	11.9	10,844	56.5	6,122
1888	913	13.2	12,050	63.3	7,628
1889	837	14.5	12,110	50.5	6,113
1889	*837*	*14.5*	*12,110*	....	....
1890	845	14.7	12,433	57.4	7,133
1891	849	15.0	12,761	57.0	7,272
1892	861	14.1	12,143	51.8	6,296
1893	816	14.9	12,132	58.3	7,074
1894	789	16.1	12,668	55.6	7,040
1895	763	20.1	15,341	45.2	6,936
1896	755	18.7	14,090	39.2	5,522
1897	718	20.9	14,997	42.1	6,319
1898	678	17.3	11,722	45.0	5,271
1899	670	16.6	11,094	55.7	6,184
1899	*807*	*13.9*	*11,234*	....	....
1900	638	15.0	9,567	55.8	5,341
1901	811	18.6	15,126	56.3	8,523
1902	805	18.1	14,530	59.6	8,655
1903	804	17.7	14,244	60.7	8,651
1904	794	18.9	15,008	62.2	9,331
1905	760	19.2	14,585	58.7	8,565
1906	789	18.6	14,642	59.6	8,727
1907	800	17.9	14,290	69.8	9,975
1908	803	19.8	15,874	75.6	12,004
1909	834	20.9	17,438	....	....
1909	*878*	*16.9*	*14,849*	70.1	10,346
1910[1]	860	20.5	17,598	66.1	11,636
1911	833	21.1	17,549	72.6	12,736
1912	841	22.9	19,249	66.1	12,720
1913	805	17.2	13,833	75.5	10,445
1914	792	21.3	16,881	76.4	12,892
1915	806	19.6	15,769	78.7	12,408

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[1] Figures adjusted to census basis.

BUCKWHEAT—Continued.

TABLE 58.—*Buckwheat: Acreage, production, and total farm value, by States, 1915.*

[000 omitted.]

State.	Acreage.	Production.	Farm value Dec. 1.	State.	Acreage	Production.	Farm value Dec. 1.
	Acres.	*Bush.*	*Dolls.*		*Acres.*	*Bush.*	*Dolls.*
Maine	13	338	237	Ohio	18	414	319
New Hampshire	1	30	24	Indiana	5	70	56
Vermont	8	216	177	Illinois	4	68	61
Massachusetts	2	32	30	Michigan	60	870	626
Connecticut	3	60	58	Wisconsin	18	234	194
New York	280	5,320	4,256	Minnesota	7	122	92
New Jersey	10	210	174	Iowa	7	91	73
Pennsylvania	274	5,754	4,488	Missouri	3	45	40
Delaware	3	56	42	Nebraska	1	20	19
				Kansas	1	14	14
Maryland	11	220	158	Tennessee	3	54	41
Virginia	26	520	416				
West Virginia	38	836	669	United States	806	15,769	12,408
North Carolina	10	175	144				

TABLE 59.—*Buckwheat: Condition of crop, United States, on first of months named, 1895–1915.*

Year.	Aug.	Sept.	When harvested.	Year.	Aug.	Sept.	When harvested.	Year.	Aug.	Sept.	When harvested.
	P. ct.	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*
1895	85.2	87.5	84.8	1902	91.4	86.4	80.5	1909	86.4	81.0	79.5
1896	96.0	93.2	86.0	1903	93.9	91.0	83.0	1910	87.9	82.3	81.7
1897	94.9	95.1	90.8	1904	92.8	91.5	88.7	1911	82.9	83.8	81.4
1898	87.2	88.8	76.2	1905	92.6	91.8	91.6	1912	88.4	91.6	89.2
1899	93.2	75.2	70.2	1906	93.2	91.2	84.9	1913	85.5	75.4	65.9
1900	87.9	80.5	72.8	1907	91.9	77.4	80.1	1914	88.8	87.1	83.3
1901	91.1	90.9	90.5	1908	89.4	87.8	81.6	1915	92.6	88.6	81.9

BUCKWHEAT—Continued.

Table 60.—*Buckwheat: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
Me	29.3	28.0	28.0	30.0	28.0	32.5	30.0	29.4	32.0	29.0	26.0	66	70	70	56	60	70	19.80	18.20
N.H	26.3	22.0	22.0	21.5	22.0	31.0	27.3	31.0	31.0	25.0	30.0	74	81	72	66	70	81	20.32	24.30
Vt	24.5	21.0	22.0	22.0	22.0	24.0	24.3	30.0	25.0	28.0	27.0	74	85	72	80	82	82	20.40	22.14
Mass	19.4	20.0	21.0	18.0	19.3	22.0	21.0	21.0	17.0	18.5	16.0	81	89	85	80	84	95	16.88	15.20
Conn	18.5	17.0	16.0	18.2	19.5	19.5	19.0	20.5	17.0	18.5	20.0	88	95	88	95	95	96	17.20	19.20
N.Y	20.6	19.0	17.5	21.4	24.0	23.0	21.3	23.8	14.3	23.0	19.0	72	73	64	81	76	80	14.96	15.20
N.J	20.4	18.0	16.5	20.0	21.8	21.5	20.0	22.0	22.0	21.0	21.0	74	75	72	76	83	83	15.97	17.43
Pa	20.1	19.0	18.0	19.2	19.5	19.5	21.9	24.2	18.5	20.5	21.0	69	69	64	73	76	78	14.35	16.38
Del	20.1	17.0	24.0	30.0	19.8	20.5	19.0	16.0	17.0	19.0	18.5	68	65	66	69	76	75	12.48	13.88
Md	18.3	18.0	19.0	18.5	16.6	18.5	20.0	17.5	16.5	18.5	20.0	71	67	71	75	81	72	13.48	14.40
Va	19.2	19.0	19.0	18.0	18.0	18.0	16.0	21.5	23.1	19.4	20.0	74	70	75	80	84	80	15.19	16.00
W. Va	21.3	18.0	18.5	18.0	22.7	23.0	24.0	24.0	21.0	21.5	22.0	78	85	75	78	83	80	18.07	17.60
N.C	17.7	14.0	15.5	16.4	19.8	19.0	19.0	17.5	19.3	19.0	17.5	78	80	85	78	83	82	15.22	14.35
Ohio	20.2	19.0	19.5	18.5	21.2	18.0	21.0	19.5	18.0	24.0	23.0	74	78	70	76	76	77	15.09	17.71
Ind	17.1	16.0	15.5	17.0	17.3	17.7	18.3	19.0	18.5	17.5	14.0	74	74	73	75	78	80	13.47	11.20
Ill	18.4	19.0	17.0	18.2	18.2	20.0	18.1	22.0	17.0	17.7	17.0	86	95	80	80	95	90	16.64	15.30
Mich	15.5	13.0	15.5	13.5	14.3	15.3	18.0	17.0	15.0	18.5	14.5	67	71	65	70	71	72	11.39	10.44
Wis	15.4	15.0	16.0	15.2	12.3	14.0	17.5	17.0	16.5	17.5	13.0	73	75	66	69	76	83	11.90	10.79
Minn	16.8	14.0	14.7	18.2	15.2	16.0	18.0	21.0	16.5	17.0	17.5	69	76	65	64	70	75	12.26	13.12
Iowa	15.4	12.0	15.0	15.5	15.0	14.9	17.5	19.0	14.0	18.3	13.0	80	90	75	81	77	80	13.56	10.40
Mo	15.8	18.0	16.0	20.1	21.0	16.5	10.0	15.0	11.0	15.5	15.0	89	105	95	85	93	90	12.58	13.50
Nebr	17.6	15.0	14.5	18.0	16.0	20.0	16.0	18.0	20.0	18.5	20.0	86	95	90	79	84	95	16.15	19.00
Kans	14.5	17.0	12.0	18.7	14.0	15.0	12.0	16.0	10.0	16.0	14.0	88	98	78	80	90	99	12.03	13.86
Tenn	16.6	16.0	15.0	15.3	15.0	15.0	16.0	18.0	15.0	22.3	18.0	79	79	78	75	78	76	13.64	13.68
U. S	20.0	18.6	17.9	19.8	20.9	20.5	21.1	22.9	17.2	21.3	19.6	71.0	72.6	66.1	75.5	76.4	78.7	14.64	15.39

[1] Based upon farm price Dec. 1.

Table 61.—*Buckwheat: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	77.9	76.6	77.6	76.1	81.2	80.0	76.5	75.5	87.5	78.5	74.0	75.0
February	83.7	75.6	84.0	74.4	85.0	83.4	80.8	75.1	79.0	71.0	76.0	80.0
March	85.5	75.1	87.0	74.5	85.1	80.3	77.0	73.4	82.5	73.0	80.0	75.0
April	85.3	76.9	84.8	76.4	89.2	83.8	85.1	73.7	90.0	73.0	78.0	73.0
May	84.6	77.3	84.7	77.7	89.0	80.0	79.6	72.5	90.5	71.5	77.0	75.0
June	86.9	79.0	87.6	79.0	86.7	84.5	82.7	73.4	91.0	74.5	76.0	80.0
July	92.1	85.5	93.3	87.4	87.1	82.2	86.2	77.2	117.5	82.5	77.0	75.0
August	89.2	81.2	91.3	81.4	83.2	82.7	78.9	78.5	102.0	77.0	77.0	......
September	81.4	79.8	81.6	79.4	82.0	83.0	78.3	77.8	97.5	85.0	75.0	75.0
October	73.7	78.7	73.9	79.5	77.0	82.3	68.0	69.4	88.0	84.0	70.0	75.0
November	78.5	78.0	79.0	77.8	75.2	78.8	76.3	78.2	97.5	79.5	71.0	75.0
December	78.7	76.4	79.0	75.9	79.1	82.7	75.8	74.0	81.5	77.3	76.0	78.0

POTATOES.

TABLE 62.—*Potatoes: Area and production of undermentioned countries, 1912–1914.*

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	3,711,000	3,668,000	3,711,000	420,647,000	331,525,000	409,921,000
Canada:						
Prince Edward Island	33,000	32,000	32,000	6,741,000	6,219,000	6,806,000
Nova Scotia	32,000	32,000	32,000	9,447,000	5,369,000	7,165,000
New Brunswick	43,000	44,000	44,000	7,558,000	10,629,000	10,534,000
Quebec	116,000	116,000	115,000	15,945,000	20,504,000	21,811,000
Ontario	158,000	152,000	154,000	22,690,000	18,105,000	25,772,000
Manitoba	27,000	26,000	27,000	6,182,000	5,120,000	3,172,000
Saskatchewan	31,000	31,000	31,000	6,552,000	5,138,000	4,085,000
Alberta	27,000	26,000	26,000	5,775,000	4,350,000	3,652,000
British Columbia	17,000	15,000	15,000	3,995,000	3,110,000	2,675,000
Total Canada	484,000	474,000	476,000	84,885,000	78,544,000	85,672,000
Newfoundland	(1)	(1)	(1)	1,524,000	1,524,000	(1)
Total				507,056,000	411,593,000	
SOUTH AMERICA.						
Argentina	267,000	278,000	293,000	36,743,000	38,029,000	(1)
Chile	66,000	78,000	81,000	9,656,000	8,753,000	9,169,000
Total	333,000	356,000	374,000	46,399,000	46,782,000	
EUROPE.						
Austria-Hungary:						
Austria	3,092,000	3,152,000	(1)	460,821,000	424,457,000	(1)
Hungary proper	1,530,000	1,513,000	1,513,000	197,812,000	179,133,000	195,266,000
Croatia-Slavonia	195,000	194,000	(1)	21,674,000	21,140,000	(1)
Bosnia-Herzegovina	62,000	67,000	(1)	3,472,000	2,998,000	(1)
Total Austria-Hungary	4,879,000	4,926,000		683,779,000	627,728,000	
Belgium	387,000	395,000	411,000	121,481,000	117,613,000	(1)
Bulgaria	8,000	(1)	(1)	503,000	(1)	(1)
Denmark	151,000	(1)	(1)	32,629,000	42,231,000	37,335,000
Finland	(1)	(1)	(1)	23,488,000	23,424,000	(1)
France	3,863,000	3,825,000	3,676,000	552,074,000	499,194,000	440,652,000
Germany	8,257,000	8,432,000	8,367,000	1,844,863,000	1,988,591,000	1,674,377,000
Italy	514,000	722,000	727,000	56,313,000	65,741,000	61,104,000
Luxemburg	37,000	37,000	37,000	8,683,000	7,637,000	5,288,000
Malta	4,000	(1)	(1)	750,000	(1)	(1)
Netherlands	426,000	420,000	416,000	121,878,000	109,260,000	120,780,000
Norway	[2] 104,000	(1)	(1)	[2] 29,825,000	27,780,000	27,548,000
Roumania	[3] 30,000	[3] 25,000	[3] 26,000	[3] 3,748,000	[3] 2,523,000	[3] 2,654,000
Do	[4] 60,000	[4] 60,000	[4] 56,000	[4] 1,084,000	[4] 1,066,000	[4] 1,083,000
Russia, European:						
Russia proper	8,321,000	8,664,000	8,795,000	925,775,000	869,240,000	891,573,000
Poland	2,656,000	2,662,000	2,438,000	411,281,000	383,736,000	(1)
Northern Caucasia	190,000	194,000	206,000	19,768,000	16,720,000	17,996,000
Total Russia, European	11,167,000	11,520,000	11,439,000	1,356,824,000	1,269,696,000	
Serbia	31,000	(1)	(1)	2,173,000	(1)	(1)
Spain	632,000	(1)	688,000	93,089,000	(1)	76,657,000
Sweden	378,000	383,000	376,000	56,202,000	75,367,000	63,209,000
Switzerland	210,000	137,000	137,000	40,785,000	31,783,000	22,046,000
United Kingdom:						
England	437,000	417,000	436,000	78,961,000	102,834,000	104,804,000
Scotland	150,000	149,000	152,000	35,041,000	36,243,000	40,230,000
Wales	26,000	25,000	26,000	4,704,000	5,233,000	5,445,000
Ireland	595,000	582,000	583,000	95,077,000	139,602,000	128,642,000
Total United Kingdom	1,208,000	1,173,000	1,197,000	213,783,000	283,912,000	279,121,000
Total				5,243,954,000		

[1] No official statistics. [2] Year 1910 (census). [3] Grown alone. [4] Grown with corn.

POTATOES—Continued.

TABLE 62.—*Potatoes: Area and production of undermentioned countries, 1912–1914*—Continued.

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
ASIA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Japan	173,000	186,000	187,000	25,669,000	26,139,000	25,002,000
Russia, Asiatic	342,000	399,000	561,000	27,917,000	33,151,000	55,741,000
Total	515,000	585,000	748,000	53,586,000	59,290,000	80,743,000
AFRICA.						
Algeria	45,000	48,000	(1)	1,607,000	2,119,000	(1)
Union of South Africa	[2] 62,000	(1)	(1)	[2] 3,685,000	(1)	(1)
Total	107,000	....	....	5,292,000	....	....
AUSTRALASIA.						
Australia:						
Queensland	8,000	9,000	10,000	489,000	612,000	618,000
New South Wales	43,000	34,000	39,000	2,806,000	3,145,000	3,573,000
Victoria	48,000	48,000	75,000	4,446,000	7,135,000	6,593,000
South Australia	7,000	9,000	11,000	846,000	1,235,000	1,230,000
Western Australia	3,000	5,000	5,000	348,000	506,000	665,000
Tasmania	22,000	[3] 25,000	[3] 31,000	2,321,000	[3] 2,711,000	3,001,000
Total Australia	131,000	130,000	171,000	11,256,000	15,344,000	15,680,000
New Zealand	28,000	23,000	29,000	5,410,000	5,514,000	5,869,000
Total Australasia	159,000	153,000	200,000	16,666,000	20,858,000	21,549,000
Grand total	....	....	....	5,872,953,000	[4] 5,714,188,000	....

[1] No official statistics.
[2] Census of 1911.
[3] Includes Federal Territory.
[4] Total, excluding Bulgaria, Malta, Serbia, Spain, and the Union of South Africa.

TABLE 63.—*Potatoes: Total production of countries mentioned in Table 62, 1900–1914.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bushels.		*Bushels.*		*Bushels.*		*Bushels.*
1900	4,332,031,000	1904	4,298,049,000	1908	5,295,043,000	1912	5,872,953,000
1901	4,669,958,000	1905	5,254,598,000	1909	5,595,567,000	1913	....
1902	4,674,000,000	1906	4,789,112,000	1910	5,242,278,000	1914	....
1903	4,409,793,000	1907	5,122,078,000	1911	4,842,109,000		

TABLE 64.—*Potatoes: Average yield, per acre, of undermentioned countries in 1900–1914.*

Year.	United States.	Russia (European).[1]	Germany.[1]	Austria.[1]	Hungary proper.[1]	France.[1]	United Kingdom.[1]
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Average (1900–1909)	91.4	99.9	200.0	151.1	118.7	133.8	193.8
1905	87.0	106.6	216.7	182.5	126.8	142.5	218.8
1906	102.2	94.9	193.3	158.4	128.7	99.5	192.2
1907	95.4	102.4	205.3	173.2	126.6	136.2	171.0
1908	85.7	102.9	209.2	154.0	96.6	163.7	231.1
1909	106.1	111.5	208.9	157.3	125.2	160.3	222.1
1910	93.8	121.1	196.1	160.0	117.4	81.9	209.1
1911	80.9	104.2	153.9	137.2	106.3	121.8	241.5
1912	113.4	121.5	223.5	149.0	129.2	142.9	177.0
1913	90.4	110.6	235.8	134.7	118.4	127.3	242.0
1914	109.5	....	200.1	....	129.0	119.9	233.3
Average (1905–1914)	96.4	....	204.3	....	120.4	129.6	213.8

[1] Bushels of 60 pounds.

POTATOES—Continued.

TABLE 65.—*Potatoes: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.	Chicago cash price per bushel, fair to fancy.[1] December.		Chicago cash price per bushel, fair to fancy.[1] Following May.		Domestic exports, fiscal year beginning July 1.	Imports during fiscal year beginning July 1.
						Low.	High.	Low.	High.		
	Acres.	*Bush.*	*Bushels.*	*Cts.*	*Dollars.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Bushels.*	*Bushels.*
1849			*65,798,000*							155,595	
1859			*111,149,000*							380,372	
1866	1,069,000	100.2	107,201,000	47.3	50,723,000					512,380	198,265
1867	1,192,000	82.0	97,783,000	65.9	64,462,000					378,605	209,555
1868	1,132,000	93.8	106,090,000	59.3	62,919,000					508,249	138,470
1869	1,222,000	109.5	133,886,000	42.9	57,481,000					596,968	75,336
1869			*143,337,000*								
1870	1,325,000	86.6	114,775,000	65.0	74,621,000					553,070	458,758
1871	1,221,000	98.7	120,462,000	53.9	64,905,000					621,537	96,259
1872	1,331,000	85.3	113,516,000	53.5	60,692,000					515,306	346,840
1873	1,295,000	81.9	106,089,000	65.2	69,154,000					497,413	549,073
1874	1,310,000	80.9	105,981,000	61.5	65,223,000					609,642	188,757
1875	1,510,000	110.5	166,877,000	34.4	57,358,000					704,379	92,148
1876	1,742,000	71.7	124,827,000	61.9	77,320,000					529,650	3,205,555
1877	1,792,000	94.9	170,092,000	43.7	74,272,000					744,409	528,584
1878	1,777,000	69.9	124,127,000	58.7	72,924,000					625,342	2,624,149
1879	1,837,000	98.9	181,626,000	43.6	79,154,000					696,080	721,868
1879			*169,459,000*								
1880	1,843,000	91.0	167,660,000	48.3	81,062,000					638,840	2,170,372
1881	2,042,000	53.5	109,145,000	91.0	99,291,000					408,286	8,789,860
1882	2,172,000	78.7	170,973,000	55.7	95,305,000					439,443	2,362,362
1883	2,289,000	90.9	208,164,000	42.2	87,849,000					554,613	425,408
1884	2,221,000	85.8	190,642,000	39.6	75,524,000					380,868	658,633
1885	2,266,000	77.2	175,029,000	44.7	78,153,000			33	50	494,948	1,937,416
1886	2,287,000	73.5	168,051,000	46.7	78,442,000	44	47	65	90	434,864	1,432,490
1887	2,357,000	56.9	134,103,000	68.2	91,507,000	70	83	65	85	403,880	8,259,538
1888	2,533,000	79.9	202,365,000	40.2	81,414,000	30	37	24	45	471,955	883,380
1889	2,648,000	77.4	204,881,000	35.4	72,611,000	33	45	30	60	406,618	3,415,578
1889			*217,546,000*								
1890	2,652,000	55.9	148,290,000	75.8	112,342,000	82	93	95	110	341,189	5,401,912
1891	2,715,000	93.7	254,424,000	35.8	91,013,000	30	40	30	50	557,022	186,871
1892	2,548,000	61.5	156,655,000	66.1	103,568,000	60	72	70	98	845,720	4,317,021
1893	2,605,000	70.3	183,034,000	59.4	108,662,000	51	60	64	88	803,111	3,002,578
1894	2,738,000	62.4	170,787,000	53.6	91,527,000	43	58	40	70	572,957	1,341,533
1895	2,955,000	100.6	297,237,000	26.6	78,985,000	18	24	10	23	680,049	175,240
1896	2,767,000	91.1	252,235,000	28.6	72,182,000	18	26	19	26	926,646	246,178
1897	2,535,000	64.7	164,016,000	54.7	89,643,000	50	62	60	87	605,187	1,171,378
1898	2,558,000	75.2	192,306,000	41.4	79,575,000	30	36	33	52	579,833	530,420
1899	2,581,000	88.6	228,783,000	39.0	89,329,000	35	46	27	39	809,472	155,861
1899	*2,939,000*	*93.0*	*273,318,000*								
1900	2,611,000	80.8	210,927,000	43.1	90,811,000	40	48	35	60	741,483	371,911
1901	2,864,000	65.5	187,598,000	76.7	143,979,000	75	82	58	100	528,484	7,656,162
1902	2,966,000	96.0	284,633,000	47.1	134,111,000	42	48	42	60	843,075	358,505
1903	2,917,000	84.7	247,128,000	61.4	151,638,000	60	66	95	116	484,042	3,166,581
1904	3,016,000	110.4	332,830,000	45.3	150,673,000	32	38	20	25	1,163,270	181,199
1905	2,997,000	87.0	260,741,000	61.7	160,821,000	55	66	48	73	1,000,326	1,948,160
1906	3,013,000	102.2	308,038,000	51.1	157,547,000	40	43	55	75	1,530,461	176,917
1907	3,128,000	95.4	298,262,000	61.8	184,184,000	46	58	50	80	1,203,894	403,952
1908	3,257,000	85.7	278,985,000	70.6	197,039,000	60	77	70	150	765,651	8,383,966
1909	3,525,000	106.8	376,537,000								
1909	*3,669,000*	*106.1*	*389,195,000*	54.1	210,667,000	20	58	16	34	999,476	353,208
1910[2]	3,720,000	93.8	349,032,000	55.7	194,566,000	30	48	35	75	2,383,887	218,984
1911	3,619,000	80.9	292,737,000	79.9	233,778,000	70	100	90	200	1,237,276	13,734,695
1912	3,711,000	113.4	420,647,000	50.5	212,550,000	40	65	33	70	2,028,261	337,230
1913	3,668,000	90.4	331,525,000	68.7	227,903,000	50	70	60	90	1,794,073	3,645,993
1914	3,711,000	110.5	409,921,000	48.7	199,460,000	30	66	34	150	3,135,474	270,942
1915	3,761,000	95.5	359,103,000	61.6	221,104,000	53	95				

[1] Burbank to 1910.

[2] Figures adjusted to census basis.

POTATOES—Continued.

TABLE 66.—*Potatoes: Acreage, production, and total farm value, by States, 1915.*

[000 omitted.]

State.	Acreage.	Production.	Farm value Dec. 1.
	Acres.	*Bushels.*	*Dollars.*
Maine	142	22,010	15,407
New Hampshire	16	1,520	1,444
Vermont	24	2,592	2,100
Massachusetts	26	3,120	2,933
Rhode Island	5	550	506
Connecticut	24	2,280	2,189
New York	355	22,010	18,048
New Jersey	93	12,090	9,068
Pennsylvania	280	20,160	15,120
Delaware	11	1,045	784
Maryland	44	4,268	2,646
Virginia	140	17,500	10,675
West Virginia	50	5,850	3,802
North Carolina	35	3,150	2,300
South Carolina	11	880	1,012
Georgia	16	1,040	1,030
Florida	12	960	1,104
Ohio	153	12,546	8,782
Indiana	75	7,125	3,990
Illinois	126	13,860	8,177
Michigan	355	20,945	11,729
Wisconsin	298	25,926	11,667
Minnesota	285	30,210	11,782
Iowa	148	15,540	8,392
Missouri	90	8,820	5,292
North Dakota	80	7,200	2,952
South Dakota	68	7,820	2,737
Nebraska	110	11,550	4,851
Kansas	71	5,893	4,361
Kentucky	51	6,426	3,534
Tennessee	36	3,168	1,996
Alabama	20	1,600	1,440
Mississippi	13	1,170	983
Louisiana	28	1,428	1,357
Texas	42	2,730	2,866
Oklahoma	35	2,975	2,499
Arkansas	28	2,520	1,915
Montana	39	6,045	3,022
Wyoming	16	2,400	1,440
Colorado	53	7,155	3,935
New Mexico	8	800	760
Arizona	1	95	95
Utah	20	2,500	1,575
Nevada	13	2,236	1,565
Idaho	28	3,500	1,960
Washington	61	8,235	4,365
Oregon	48	5,520	3,312
California	78	10,140	7,605
United States	3,761	359,103	221,104

TABLE 67.—*Potatoes: Condition of crop, United States, on first of months named, 1895–1915.*

Year.	July.	Aug.	Sept.	Oct.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*
1895	91.5	89.7	90.8	87.4
1896	99.0	94.8	83.2	81.7
1897	87.8	77.9	66.7	61.6
1898	95.5	83.9	77.7	72.5
1899	93.8	93.0	86.3	81.7
1900	91.3	88.2	80.0	74.4
1901	87.4	62.3	52.2	54.0
1902	92.9	94.8	89.1	82.5
1903	88.1	87.2	84.3	74.6
1904	93.9	94.1	91.6	89.5
1905	91.2	87.2	80.9	74.3
1906	91.5	89.0	85.3	82.2
1907	90.2	88.5	80.2	77.0
1908	89.6	82.9	73.7	68.7
1909	93.0	85.8	80.9	78.8
1910	86.3	75.8	70.5	71.8
1911	76.0	62.3	59.8	62.3
1912	88.9	87.8	87.2	85.1
1913	86.2	78.0	69.9	67.7
1914	83.6	79.0	75.8	78.3
1915	91.2	92.0	82.7	74.2

POTATOES—Continued.

TABLE 68.—*Potatoes: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
Me.	204	210	145	225	225	220	180	198	220	260	155	54	77	55	53	33	70	108.46	108.50
N. H.	125	112	120	100	130	150	125	140	122	159	95	70	87	61	83	60	95	93.76	90.25
Vt.	123	101	120	73	155	130	105	140	127	168	108	60	79	55	72	47	81	77.77	87.48
Mass.	118	114	120	95	125	125	93	130	105	155	120	80	96	75	85	71	94	94.72	112.80
R. I.	126	108	110	150	125	136	110	113	130	165	110	84	106	77	90	70	92	105.99	101.20
Conn.	104	98	100	80	120	125	85	107	92	140	95	82	105	78	87	65	96	86.25	91.20
N. Y.	97	105	98	82	120	102	74	106	74	145	62	63	90	58	80	44	82	60.01	50.84
N. J.	102	120	120	72	90	105	73	108	95	108	130	76	105	66	82	61	75	71.99	97.50
Pa.	85	94	88	72	78	88	56	109	88	105	72	68	93	57	80	58	75	58.25	54.00
Del.	90	97	99	82	96	103	60	100	87	80	95	72	96	70	75	70	75	62.13	71.25
Md.	86	93	95	77	80	95	45	112	87	78	97	65	91	58	67	60	62	52.46	60.14
Va.	85	75	80	88	92	98	45	87	94	65	125	71	96	65	80	77	61	56.37	76.25
W. Va.	86	97	83	84	98	92	45	112	83	54	117	76	104	62	90	81	65	59.26	76.05
N. C.	76	75	88	79	74	89	48	85	80	52	90	81	108	76	82	92	73	58.97	65.70
S. C.	80	82	70	81	85	90	70	90	80	70	80	115	122	112	130	125	115	94.44	92.00
Ga.	76	77	83	78	81	82	72	78	81	60	65	103	110	87	105	105	99	76.24	64.35
Fla.	85	85	80	83	95	90	90	93	76	80	80	116	145	110	117	113	115	100.42	92.00
Ohio.	86	110	76	77	93	82	65	112	64	95	82	64	84	53	85	53	70	52.11	57.40
Ind.	81	89	87	57	95	84	58	114	53	80	95	64	87	50	84	56	56	47.76	53.20
Ill.	79	97	87	71	91	75	50	101	46	60	110	70	90	60	89	61	59	45.48	64.90
Mich.	94	95	90	72	105	105	94	105	96	121	59	45	71	41	53	30	56	45.90	33.04
Wis.	102	97	91	80	102	95	116	120	109	124	87	44	62	34	54	30	45	48.98	39.15
Minn.	102	92	101	76	115	61	115	135	110	114	106	44	58	28	52	32	39	47.44	41.34
Iowa.	84	95	85	80	89	72	74	109	48	86	105	59	73	46	82	59	54	47.49	56.70
Mo.	71	84	82	80	85	86	27	84	38	45	98	74	102	69	93	73	60	42.43	58.80
N. D.	96	98	89	85	110	41	120	128	85	109	90	52	55	28	56	42	41	46.51	36.90
S. Dak.	86	100	84	90	80	44	72	105	78	90	115	54	70	36	63	47	35	43.41	40.25
Nebr.	74	87	73	78	78	60	52	80	48	80	105	64	92	51	78	54	42	43.94	44.10
Kans.	65	79	65	80	79	57	22	82	40	62	83	83	106	73	91	77	74	43.72	61.42
Ky.	77	82	80	62	92	92	39	101	49	45	126	76	107	67	102	84	55	50.84	69.30
Tenn.	72	80	85	80	75	80	41	88	64	43	88	77	108	70	97	91	63	51.82	55.44
Ala.	82	75	95	85	80	80	78	81	84	79	80	98	118	90	105	101	90	81.63	72.00
Miss.	86	85	90	91	87	85	83	89	80	80	90	95	115	90	100	95	84	82.29	75.60
La.	67	62	67	82	75	55	69	73	70	70	51	91	100	83	96	97	95	62.84	48.45
Tex.	62	77	73	71	50	51	57	63	52	61	65	106	126	105	112	104	105	63.15	68.25
Okla.	65	80	70	78	70	60	18	60	60	70	85	97	124	93	105	90	84	52.82	71.40
Ark.	73	80	70	82	70	84	55	70	72	60	90	90	115	92	100	97	76	65.85	68.40
Mont.	149	152	150	138	180	120	150	165	140	140	155	61	74	40	67	64	50	92.48	77.50
Wyo.	131	115	200	158	160	100	42	140	140	108	150	74	140	60	65	70	60	78.28	90.00
Colo.	116	125	150	125	160	100	35	95	115	120	135	59	99	41	65	50	55	52.67	74.25
N. Mex.	90	121	100	100	85	47	80	100	68	100	100	98	100	65	140	95	95	76.82	95.00
Ariz.	112	192	140	110	90	92	95	125	75	110	95	130	140	125	135	120	100	127.68	95.00
Utah.	152	165	100	160	180	142	140	185	180	140	125	59	85	49	58	60	63	96.37	78.75
Nev.	162	175	200	120	180	150	160	178	160	130	172	76	93	60	68	70	70	115.08	120.40
Idaho.	161	175	145	130	200	142	180	185	170	155	125	51	65	29	50	48	56	84.47	70.00
Wash.	141	129	150	120	170	131	160	167	123	128	135	56	68	36	60	55	53	81.75	71.55
Oreg.	122	101	125	99	160	105	130	155	135	97	115	59	67	31	58	60	60	69.03	69.00
Cal.	129	125	145	107	130	130	135	130	119	138	130	77	90	65	70	70	75	99.28	97.50
U. S.	97.5	102.2	95.4	85.7	106.8	93.8	80.9	113.4	90.4	110.5	95.5	60.4	79.9	50.5	68.7	48.7	61.6	58.01	58.79

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[1] Based upon farm price Dec. 1.

POTATOES—Continued.

TABLE 69.—*Potatoes: Farm price per bushel on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	49.7	68.4	48.4	71.3	81.1	85.1	37.2	59.7	49.5	64.3	97.3	105.1	56.7	64.5
February	50.4	69.7	45.6	73.5	79.3	88.2	37.4	60.1	52.3	65.7	98.4	107.6	66.0	64.2
March	50.4	70.7	44.7	72.7	81.4	88.5	36.1	61.0	54.4	68.5	104.3	111.6	65.7	65.9
April	47.8	70.0	38.4	75.0	80.5	93.0	35.9	59.0	51.7	68.7	104.4	110.5	66.9	58.2
May	50.5	71.4	40.2	78.1	80.3	94.4	36.5	61.7	54.5	68.0	102.3	110.1	79.0	57.1
June	50.8	71.3	38.8	77.5	78.1	89.5	35.3	64.0	54.0	68.3	103.5	109.5	89.2	56.4
July	52.1	81.5	39.3	85.2	68.2	99.9	36.6	75.8	58.8	83.5	89.4	100.6	95.8	67.7
August	56.3	87.1	44.1	91.7	56.2	97.8	50.4	87.5	64.0	80.3	74.5	106.4	87.3	75.3
September	50.5	74.9	49.3	70.8	57.8	92.3	42.8	70.3	45.7	67.9	77.8	111.1	67.7	80.5
October	48.8	64.7	54.7	59.8	62.0	89.1	38.7	60.6	39.9	57.2	79.5	107.2	54.9	66.6
November	60.8	52.8	78.9	49.6	66.7	82.7	50.7	38.6	40.1	44.7	84.0	99.6	54.8	65.3
December	61.6	48.7	77.4	46.6	67.3	80.7	55.2	36.5	46.4	46.4	75.4	94.8	60.9	60.7

TABLE 70.—*Potatoes: Wholesale price, 1900–1915.*

Date.	New York.		Chicago.		Minneapolis.		St. Louis.		Cincinnati.		Denver.		San Francisco.	
	State and western, per 180 pounds.		Fair to fancy, per bushel.[1]		Per bushel.		Burbank, per bushel.		Per bushel.[2]		Per 100 pounds.		Burbank, Rivers, per 100 pounds.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$1.00	$1.87	$0.25	$0.50	$0.15	$0.45	$0.27	$0.54	$0.32	$0.57	$0.70	$1.30	$0.25	$1.00
1901	1.12	3.00	.30	1.25	.30	1.10	.18	1.40	.30	1.20	.90	3.25	.30	1.20
1902	1.50	3.12	.30	1.00	.20	1.15	.41	1.05	.90	3.00	.75	1.95	.25	1.65
1903	1.25	2.37	.38	.85	35	1.00	.40	1.25	1.20	3.00	.90	2.50	.30	1.75
1904	1.25	3.87	.31	1.22	.30	1.50	.36	1.25	1.20	4.80	.55	2.00	.40	1.85
1905	.75	2.62	.18	.72	.25	1.10	.27	1.75	.25	.80	.50	1.50	.35	1.25
1906	1.25	3.25	.40	.87	40	2.00	.35	1.25	.45	1.05	1.00	2.00	.25	1.45
1907	1.00	2.75	.30	.75	.40	1.20	.43	1.25	.25	.85	1.00	2.50	.50	3.50
1908	1.87	2.87	.50	1.50	.50	2.25	.62	1.05	.60	1.35	1.00	3.00	.30	1.25
1909	1.50	3.37	.15	1.50	.45	1.40	.35	1.40	.30	1.20	.90	4.00	.50	2.25
1910	.87	2.00	.10	.98	.25	3.25	.23	1.00	.30	.65	.50	4.00	.30	1.50
1911	1.12	3.12	.30	2.25	.45	1.80	.42	2.00	.40	1.95	1.15	5.00	.85	2.75
1912	.50	4.50	.32	2.00	.25	1.40	.35	1.52	.50	1.50	.75	4.50	.40	2.25
1913	1.70	2.87	.15	.82	.33	1.00	.30	.93	.30	1.00	.50	4.00	.20	1.65
1914	1.25	3.00	.28	1.75	.28	1.50	[3] .33	1.60	.45	1.70	.90	2.75	.60	1.65
1915.														
January	[4] 1.25	1.65	.30	.50	.33	.48	......	......	.45	.50	.90	1.25	1.10	1.25
February	1.00	1.50	.35	.50	.33	.65	......	......	.45	.50	.90	1.25	1.20	1.35
March	1.25	1.50	.30	.50	.30	.50	......	......	.45	.50	1.00	1.75	1.20	1.30
April	1.25	1.75	.30	.47	.37	.45	......	......	.45	.50	1.25	1.75	1.30	1.30
May	1.25	1.45	.34	1.50	.32	.55	......	......	.42	.50	1.50	1.75	2.25	3.50
June	......	......	.18	1.50	.32	.55	......	......	.30	.45	1.50	2.25	1.00	1.75
July	......	......	.17	.85	.40	1.00	......	......	.30	.35	1.50	2.25	.90	1.00
August	......	......	.45	.63	.27	.50	......	......	.35	.45	1.00	2.00	.95	1.15
September	......	2.00	.32	.60	.25	.36	......	......	.35	.50	.85	1.35	.85	1.00
October	1.75	2.50	.37	.70	.35	.65	......	......	.50	.75	.85	1.25	.90	1.15
November	2.00	2.50	.38	.68	.40	.60	......	......	.55	.70	.90	1.40	1.00	1.25
December	[2] 2.40	3.00	.53	.95	.40	.90	......	......	.65	.90	1.10	1.60	1.25	1.50
Year	1.00	3.00	.17	1.50	.25	1.00	......	......	.30	.90	.85	2.25	.85	3.50

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[1] Burbank to 1910.

[2] Per barrel 1900, 1902–1904, and from August to November, 1914.

[3] Early Ohio, home grown. July and August.

[4] Western not quoted. January to September, inclusive.

POTATOES—Continued.

TABLE 71.—*Potatoes: International trade, calendar years 1912–1914.*

[See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Bushels.	*Bushels.*	*Bushels.*		*Bushels.*	*Bushels.*	*Bushels.*
Argentina	793	794	544	Netherlands	17,260	15,279	....
Austria-Hungary	1,029	1,179	....	Portugal	429	556	....
Belgium	9,460	9,067	....	Russia	9,171	3,007	982
Canada	935	2,012	1,116	Spain	1,718	2,502	1,743
China	307	346	272	United Kingdom	13,466	911	1,893
Denmark	795	510	769	United States	1,631	1,817	2,715
France	8,401	6,654	3,976	Other countries	2,379	1,745	....
Germany	4,608	12,216	....				
Italy	3,592	5,177	6,296	Total	76,382	64,175	....
Japan	408	403	....				

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Argentina	280	314	421	Norway	51	176	174
Austria-Hungary	3,452	4,506	....	Philippine Islands	377	330	311
Belgium	3,728	4,683	....	Russia	268	395	291
Brazil	1,065	1,095	697	Sweden	660	735	452
Canada	786	400	664	Switzerland	3,119	3,443	4,873
Cuba	1,885	2,225	2,298	United Kingdom	10,703	17,444	6,184
Egypt	647	549	540	United States	12,409	3,171	800
Finland	459	385	....	Other countries	2,656	3,194	....
France	6,149	8,490	8,748				
Germany	30,214	14,038	....	Total	80,134	67,614	....
Netherlands	1,226	2,041	....				

SWEET POTATOES.

TABLE 72.—*Sweet potatoes: Acreage, production, and value, in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.
	Acres.	*Bushels.*	*Bushels.*	*Cents.*	*Dollars.*
1849	....	....	*38,268,000*	....	....
1859	....	....	*42,095,000*	....	....
1869	....	....	*21,710,000*	....	....
1879	....	....	*33,379,000*	....	....
1889	....	....	*43,950,000*	....	....
1899	*537,000*	*79.1*	*42,517,000*	*46.7*	*19,870,000*
1900	544,000	88.9	48,346,000	50.6	24,478,000
1901	547,000	81.7	44,697,000	57.5	25,720,000
1902	532.000	85.2	45,344,000	58.1	26,358,000
1903	548,000	89.2	48,870,000	58.3	28,478,000
1904	548,000	88.9	48,705,000	60.4	29,424,000
1905	551,000	92.6	51,034,000	58.3	29,734,000
1906	554,000	90.2	49,948,000	62.2	31,063,000
1907	565,000	88.2	49,813,000	70.0	34,858,000
1908	599,000	92.4	55,352,000	66.1	36,564,000
1909	*641,000*	*92.4*	*59,232,000*	69.4	41.052,000
1910	641,000	93.5	59,938,000	67.1	40,216,000
1911	605,000	90.1	54,538,000	75.5	41,202,000
1912	583,000	95.2	55,479,000	72.6	40,264,000
1913	625,000	94.5	59,057,000	72.6	42,884,000
1914	603,000	93.8	56,574,000	73.0	41,294,000
1915	719,000	103.3	74,295,000	62.0	46,081,000

SWEET POTATOES—Continued.

Table 73.—*Sweet potatoes: Acreage, production, and total farm value, by States, 1915.*

State.	Acreage.	Production.	Farm value Dec. 1.	State.	Acreage.	Production.	Farm value Dec. 1.
	Acres.	*Bushels.*	*Dollars.*		*Acres.*	*Bushels.*	*Dollars.*
New Jersey	23,000	3,565,000	2,496,000	Missouri	7,000	700,000	574,000
Pennsylvania	1,000	105,000	79,000	Kansas	4,000	440,000	440,000
Delaware	5,000	675,000	418,000	Kentucky	10,000	1,050,000	735,000
Maryland	8,000	1,040,000	728,000	Tennessee	27,000	2,835,000	1,673,000
Virginia	34,000	3,740,000	2,431,000	Alabama	80,000	7,200,000	4,104,000
West Virginia	2,000	220,000	202,000	Mississippi	70,000	7,700,000	4,235,000
North Carolina	85,000	8,925,000	4,998,000	Louisiana	65,000	5,980,000	2,990,000
South Carolina	65,000	6,825,000	4,436,000	Texas	60,000	5,880,000	4,116,000
Georgia	95,000	8,075,000	4,926,000	Oklahoma	6,000	690,000	504,000
Florida	23,000	2,576,000	1,752,000	Arkansas	30,000	3,900,000	2,379,000
Ohio	1,000	95,000	93,000	California	6,000	810,000	648,000
Indiana	1,000	104,000	94,000				
Illinois	8,000	880,000	722,000	United States	719,000	74,295,000	46,081,000
Iowa	3,000	285,000	308,000				

Table 74.—*Sweet potatoes: Condition of crop, United States, on first of months named, 1895–1915.*

Year.	July.	Aug.	Sept.	Oct.	Year.	July.	Aug.	Sept.	Oct.	Year.	July.	Aug.	Sept.	Oct.
	P.ct.	*P.ct.*	*P.ct.*	*P.ct.*		*P.ct.*	*P.ct.*	*P.ct.*	*P.ct.*		*P.ct.*	*P.ct.*	*P.ct.*	*P.ct.*
1895	91.4	91.0	89.3	81.2	1902	83.6	78.3	77.2	79.7	1909	89.7	86.9	81.3	77.8
1896	89.3	87.1	71.7	71.1	1903	90.2	88.7	91.1	83.7	1910	87.3	85.7	83.9	80.2
1897	86.5	86.4	85.4	......	1904	87.3	88.5	89.9	86.1	1911	78.4	77.7	79.1	78.1
1898	......	92.0	90.6	89.9	1905	90.6	90.1	89.5	88.6	1912	86.9	85.0	84.1	82.0
1899	85.1	84.1	80.7	74.9	1906	90.9	91.2	88.7	86.0	1913	86.5	85.8	81.4	80.1
1900	93.7	92.2	83.6	80.0	1907	85.9	85.7	85.7	82.7	1914	77.1	75.5	81.8	80.7
1901	93.1	80.7	78.7	79.0	1908	89.8	88.8	88.7	85.5	1915	88.7	85.5	87.5	85.0

Table 75.—*Sweet potatoes: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
N. J	127	123	105	133	123	140	130	120	138	100	155	81	100	84	78	95	70	103.77	108.50
Pa	106	105	100	102	88	105	121	120	110	105	105	85	105	75	90	86	75	97.02	78.75
Del	124	128	93	125	125	115	140	120	135	120	135	65	70	68	60	70	62	81.57	83.70
Md	119	115	100	110	115	110	115	125	141	125	130	67	75	63	60	70	70	80.18	91.00
Va	96	92	86	95	100	100	90	90	108	92	110	69	74	75	70	76	65	68.52	71.50
W. Va	97	92	86	72	100	101	110	115	91	92	110	90	100	90	100	98	92	96.71	101.20
N. C	94	87	90	93	99	105	86	90	100	90	105	58	63	62	61	65	56	57.45	58.80
S. C	91	78	83	88	95	91	84	105	92	85	105	66	72	68	75	70	65	63.72	68.25
Ga	87	83	95	86	93	83	81	90	87	85	85	65	73	66	68	69	61	58.06	51.85
Fla	110	110	105	115	105	108	108	112	110	120	112	73	83	73	75	80	68	86.18	76.16
Ohio	101	108	85	83	110	98	113	118	90	110	95	94	100	87	106	96	98	100.19	93.10
Ind	98	100	90	71	101	104	114	116	78	100	104	91	96	89	103	90	90	93.87	93.60
Ill	94	101	90	80	110	110	89	98	70	84	110	95	110	95	106	95	82	88.58	90.20
Iowa	94	92	75	93	110	98	105	90	80	100	95	113	110	108	150	127	108	112.52	102.60
Mo	88	98	82	91	90	102	91	88	56	84	100	91	105	95	105	96	82	80.65	82.00

[1] Based upon farm price Dec. 1.

SWEET POTATOES—Continued.

TABLE 75.—*Sweet potatoes: Yield per acre, price per bushel Dec. 1, and value per acre, by States*—Continued.

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
Nebr	90	120	93	85	92	90	80	78	64	105	90	126	147	110	140	130	88	112.90	79.20
Kans	95	110	95	105	96	101	75	99	50	110	110	105	130	103	110	106	100	95.02	110.00
Ky	90	90	85	84	88	85	96	90	75	105	105	79	88	85	94	77	70	75.22	73.50
Tenn	88	80	82	89	87	85	85	90	80	100	105	68	75	72	80	69	59	64.04	61.95
Ala	89	82	80	85	80	85	97	100	95	93	90	65	68	71	67	65	57	63.26	51.30
Miss	92	85	92	92	82	94	85	97	98	90	110	62	62	62	62	63	55	57.34	60.50
La	88	90	86	86	90	93	90	84	85	87	92	62	60	65	70	64	50	56.85	46.00
Tex	79	96	75	88	50	56	71	75	80	101	98	89	104	104	95	87	70	75.24	68.60
Okla	88	118	85	88	70	70	75	92	64	102	115	101	125	109	104	89	73	85.67	83.95
Ark	92	90	75	100	58	98	92	88	90	95	130	77	82	90	80	77	61	74.27	79.30
N. Mex	142	100	200	125	180	100	150	141	125	143	160	123	144	105	130	113	120	161.23	192.00
Ariz	150	100	150	140	163	120	200	140	135	200	150	151	160	150	170	150	150	245.50	225.00
Cal	143	115	130	105	160	160	140	156	170	161	135	92	110	94	100	87	80	152.54	108.00
U. S	93.1	90.2	88.2	92.4	90.1	93.5	90.1	95.2	94.5	93.8	103.3	69.2	75.5	72.6	72.6	73.0	62.0	67.40	64.09

[1] Based upon farm price Dec. 1.

TABLE 76.—*Sweet potatoes: Wholesale price per barrel, 1900–1915.*

Date.	Baltimore.		St. Louis.		New Orleans.		New York.			
							Jersey.		Southern.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$0.75	$4.50	$1.00	$6.25	$1.00	$2.00	$1.25	$5.00	$0.50	$3.00
1901	.50	6.00	.88	8.75	.75	1.75	1.50	4.00	.50	3.25
1902	.75	5.00	.63	7.50	1.25	2.75	1.50	5.25	.75	5.00
1903	.75	4.00	.75	6.25	.75	2.50	1.50	4.00	.50	5.00
1904	.75	5.00	.88	5.50	.75	1.75	1.00	5.00	.50	4.50
1905	.75	4.50	.50	5.00	.50	2.00	1.25	5.50	.35	4.50
1906	.60	4.25	.60	5.00	1.25	2.50	1.25	3.50	.50	4.50
1907	1.00	5.00	.75	7.50	1.00	2.75	1.00	4.00	1.50	6.00
1908	1.00	5.00	.88	7.50	1.00	2.75	1.50	4.50	1.00	5.00
1909	.85	5.50	.38	6.25	.75	2.75	1.25	4.00	.75	4.50
1910	1.00	4.00	.50	4.38	1.00	2.40	1.00	3.00	.30	5.00
1911	1.25	6.25	1.25	6.25	1.00	3.00	1.50	3.75	1.00	7.00
1912	1.00	6.00	.75	5.00	1.75	2.00	1.50	3.50	.50	6.00
1913	.75	7.00	.88	6.25	2.00	2.00	1.25	3.50	.40	5.50
1914	1.00	5.50	1.50	4.50	.80	3.50	1.50	3.50	.75	5.00
1915.										
January	1.50	3.25	2.50	3.25	.50	.60	2.50	3.00	....	....
February	1.50	3.50	2.50	3.00	.50	.80	....	....	....	....
March	1.50	4.00	2.50	4.50	.50	1.00	....	....	2.00	3.50
April	1.50	5.50	....	....	.75	1.00	....	....	2.50	3.50
May	4.00	5.00	....	....	.90	1.25	....	....	....	....
June	....	....	....	....	1.25	1.50	....	....	....	....
July	3.50	6.50	....	....	1.25	1.50	....	....	....	....
August	2.25	4.00	....	....	1.00	1.50	....	....	2.00	5.00
September	1.25	2.50	1.50	3.40	.50	.90	....	....	1.00	3.50
October	1.00	2.00	1.90	2.40	.35	1.05	1.25	2.25	1.00	2.37
November	1.25	2.00	1.90	2.25	.35	.60	.50	2.25	1.00	2.00
December	.75	2.25	2.00	2.75	.50	.80	1.75	2.50	.50	2.25
Year	.75	6.50	1.50	4.50	.35	1.50	.50	3.00	.50	5.00

HAY.

TABLE 77.—*Hay: Acreage, production, value, exports, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per ton Dec. 1.	Farm value Dec. 1.	Chicago prices No. 1 timothy per ton, by carload lots.				Domestic exports, fiscal year beginning July 1.
						December.		Following May.		
						Low.	High.	Low.	High.	
	Acres.	*Tons.*[1]	*Tons.*[1]	*Dolls.*	*Dollars.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Tons.*[2]
1849	......	......	*13,839,000*	......	......	......	......	......	......	......
1859	......	......	*19,084,000*	......	......	......	......	......	......	......
1866	17,669,000	1.23	21,779,000	10.14	220,836,000	......	......	......	......	5,028
1867	20,021,000	1.31	26,277,000	10.21	268,301,000	......	......	......	......	5,645
1868	21,542,000	1.21	26,142,000	10.08	263,589,000	......	......	......	......	......
1869	18,591,000	1.42	26,420,000	10.18	268,933,000	......	......	......	......	6,723
1869	......	......	*27,316,000*	......	......	......	......	......	......	......
1870	19,862,000	1.23	24,525,000	12.47	305,743,000	......	......	......	......	4,581
1871	19,009,000	1.17	22,239,000	14.30	317,940,000	......	......	......	......	5,266
1872	20,319,000	1.17	23,813,000	12.94	308,025,000	......	......	......	......	4,557
1873	21,894,000	1.15	25,085,000	12.53	314,241,000	......	......	......	......	4,889
1874	21,770,000	1.15	25,134,000	11.94	300,222,000	......	......	......	......	7,183
1875	23,508,000	1.19	27,874,000	10.78	300,378,000	......	......	......	......	7,528
1876	25,283,000	1.22	30,867,000	8.97	276,991,000	......	......	9.00	10.00	7,287
1877	25,368,000	1.25	31,629,000	8.37	264,880,000	9.50	10.50	9.75	10.75	9,514
1878	26,931,000	1.47	39,608,000	7.20	285,016,000	8.00	8.50	9.00	11.50	8,127
1879	27,485,000	1.29	35,493,000	9.32	330,804,000	14.00	14.50	14.00	15.00	13,739
1879	*30,631,000*	*1.15*	*35,151,000*	......	......	......	......	......	......	......
1880	25,864,000	1.23	31,925,000	11.65	371,811,000	15.00	15.50	17.00	19.00	12,662
1881	30,889,000	1.14	35,135,000	11.82	415,131,000	16.00	16.50	15.00	16.50	10,570
1882	32,340,000	1.18	38,138,000	9.73	371,170,000	11.50	12.25	12.00	13.00	13,309
1883	35,516,000	1.32	46,864,000	8.19	383,834,000	9.00	10.00	12.50	17.00	16,908
1884	38,572,000	1.26	48,470,000	8.17	396,139,000	10.00	11.50	15.50	17.50	11,142
1885	39,850,000	1.12	44,732,000	8.71	389,753,000	11.00	12.00	10.00	12.00	13,390
1886	36,502,000	1.15	41,796,000	8.46	353,438,000	9.50	10.50	11.00	12.50	13,873
1887	37,665,000	1.10	41,454,000	9.97	413,440,000	13.50	14.50	17.00	21.00	18,198
1888	38,592,000	1.21	46,643,000	8.76	408,500,000	11.00	11.50	10.50	21.00	21,928
1889	52,949,000	1.26	66,831,000	7.04	470,394,000	9.00	10.00	9.00	14.00	36,274
1889	*52,949,000*	*1.26*	*66,831,000*	......	......	......	......	......	......	......
1390	50,713,000	1.19	60,198,000	7.87	473,570,000	9.00	10.50	12.50	15.50	28,066
1891	51,044,000	1.19	60,818,000	8.12	494,114,000	12.50	15.00	13.50	14.00	35,201
1892	50,853,000	1.18	59,824,000	8.20	490,428,000	11.00	11.50	12.00	13.50	33,084
1893	49,613,000	1.33	65,766,000	8.68	570,883,000	10.00	10.50	10.00	10.50	54,446
1894	48,321,000	1.14	54,874,000	8.54	468,578,000	10.00	11.00	10.00	10.25	47,117
1895	44,206,000	1.06	47,079,000	8.35	393,186,000	12.00	12.50	11.50	12.00	59,052
1896	43,260,000	1.37	59,282,000	6.55	388,146,000	8.00	8.50	8.50	9.00	61,658
1897	42,427,000	1.43	60,665,000	6.62	401,391,000	8.00	8.50	9.50	10.50	81,827
1398	42,781,000	1.55	66,377,000	6.00	398,061,000	8.00	8.25	9.50	10.50	64,916
1899	41,328,000	1.37	56,656,000	7.27	411,926,000	10.50	11.50	10.50	12.50	72,716
1899	*52,351,000*	*1.09*	*57,002,000*	......	......	......	......	......	......	......
1900	39,133,000	1.28	50,111,000	8.89	445,539,000	11.50	14.00	12.50	13.50	89,364
1901	39,391,000	1.28	50,591,000	10.01	506,192,000	13.00	13.50	12.50	13.50	153,431
1902	39,825,000	1.50	59,858,000	9.06	542,036,000	12.00	12.50	13.50	15.00	50,974
1903	39,934,000	1.54	61,306,000	9.07	556,276,000	10.00	12.00	12.00	15.00	60,730
1904	39,999,000	1.52	60,696,000	8.72	529,108,000	10.50	11.50	11.00	12.00	66,557
1905	39,362,000	1.54	60,532,000	8.52	515,960,000	10.00	12.00	11.50	12.50	70,172
1906	42,476,000	1.35	57,146,000	10.37	592,540,000	15.50	18.00	15.50	20.50	58,602
1907	44,028,000	1.45	63,677,000	11.68	743,507,000	13.00	17.50	13.00	14.00	77,281
1908	46,486,000	1.52	70,798,000	8.98	635,423,000	11.50	12.00	12.00	13.00	64,641
1909	45,744,000	1.42	64,938,000	......	......	......	......	......	......	......
1909	*51,041,000*	*1.35*	*68,833,000*	10.50	722,401,000	16.00	17.00	12.50	16.00	55,007
1910[3]	51,015,000	1.36	69,378,000	12.14	842,252,000	16.00	19.00	18.50	23.50	55,228
1911	48,240,000	1.14	54,916,000	11.29	784,926,000	20.00	22.00	24.00	28.00	59,730
1912	49,530,000	1.47	72,691,000	11.79	856,695,000	13.00	18.00	14.00	16.50	60,720
1913	48,954,000	1.31	64,116,000	12.43	797,077,000	14.50	18.00	15.00	17.50	50,151
1914	49,145,000	1.43	70,071,000	11.12	779,068,000	15.00	16.00	16.50	17.50	105,508
1915	50,872,000	1.68	85,225,000	10.70	912,320,000	14.50	16.50	......	......	......

[1] 2,000 pounds.

[2] 2,240 pounds.

[3] Figures adjusted to census basis.

HAY—Continued.

TABLE 78.—*Hay: Acreage, production, and total farm value, by States, 1915.*

[000 omitted.]

State.	Acreage.	Production.	Farm value Dec. 1.	State.	Acreage.	Production.	Farm value Dec. 1.
	Acres.	*Tons.*	*Dollars.*		*Acres.*	*Tons.*	*Dollars.*
Maine	1,215	1,397	20,815	North Dakota	440	660	3,762
New Hampshire	504	504	8,770	South Dakota	610	1,220	6,466
Vermont	970	1,310	20,305	Nebraska	1,650	4,290	24,882
Massachusetts	470	705	15,510	Kansas	1,766	4,062	22,747
Rhode Island	57	71	1,598	Kentucky	875	1,225	15,312
Connecticut	365	493	9,860	Tennessee	950	1,396	19,404
New York	4,500	5,850	91,845	Alabama	250	362	4,489
New Jersey	361	523	9,937	Mississippi	250	350	3,850
Pennsylvania	3,100	4,340	67,704	Louisiana	250	438	4,511
Delaware	70	84	1,428	Texas	450	765	6,044
Maryland	390	468	7,582	Oklahoma	460	1,058	5,925
Virginia	700	945	14,836	Arkansas	350	560	5,768
West Virginia	730	1,095	16,425	Montana	775	1,550	11,625
North Carolina	350	648	10,692	Wyoming	550	1,210	9,438
South Carolina	220	286	4,462	Colorado	970	2,134	16,218
Georgia	300	345	5,210	New Mexico	201	442	3,890
Florida	51	61	976	Arizona	147	470	4,512
Ohio	2,812	4,049	51,422	Utah	394	985	7,880
Indiana	2,020	3,030	33,330	Nevada	225	675	5,062
Illinois	2,400	3,696	39,917	Idaho	677	1,828	14,076
Michigan	2,470	3,458	42,188	Washington	812	1,868	20,174
Wisconsin	2,576	4,508	44,629	Oregon	850	1,870	17,765
Minnesota	1,680	3,209	20,538	California	2,511	4,520	50,624
Iowa	3,098	5,576	48,511				
Missouri	3,050	4,636	39,406	United States	50,872	85,225	912,320

TABLE 79.—*Hay: Yield per acre, price per ton Dec. 1, and value per acre, by States.*

State.	Average yield per acre (tons).											Farm price per ton (dollars).						Value per acre (dollars).[1]	
	10-year average, 1906-1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906-1915.	1911	1912	1913	1914	1915	5-year average, 1910-1914.	1915
Me.	1.14	1.20	1.50	0.90	0.95	1.25	1.10	1.16	1.00	1.15	1.15	13.42	14.40	13.70	13.90	13.10	14.90	15.34	**17.14**
N. H.	1.10	1.15	1.35	.92	.97	1.20	1.05	1.25	1.00	1.15	1.00	16.18	17.20	15.00	17.20	17.00	17.40	18.50	**17.40**
Vt.	1.31	1.20	1.60	1.11	1.25	1.35	1.30	1.50	1.28	1.20	1.35	13.60	14.00	14.00	14.50	14.60	15.50	18.40	**20.92**
Mass.	1.26	1.31	1.30	1.20	1.15	1.28	1.08	1.25	1.21	1.32	1.50	20 01	23.00	21.50	21.10	21.50	22.00	26.02	**33.00**
R. I.	1.19	1.06	1.35	1.50	1.10	1.18	1.00	1.13	1.17	1.17	1.24	20.20	24.10	22.20	21.20	20.20	22.50	24.15	**27.90**
Conn.	1.22	1.17	1.30	1.20	1.15	1.35	1.10	1.15	1.14	1.25	1.35	19.16	23.50	22.50	20.10	19.50	20.00	24.93	**27.00**
N. Y.	1.20	1.28	1.25	1.20	1.05	1.32	1.02	1.25	1.14	1.20	1.30	14.62	17.90	14.90	15.30	14.60	15.70	17.98	**20.41**
N. J.	1.37	1.32	1.45	1.60	1.25	1.50	1.05	1.44	1.30	1.35	1.45	18.12	22.00	20.00	19.00	19.50	19.00	26.04	**27.55**
Pa.	1.33	1.30	1.45	1.50	1.20	1.38	1.00	1.43	1.32	1.28	1.40	15.14	20.00	15.60	14.90	14.50	15.60	20.25	**21.84**
Del.	1.29	1.25	1.40	1.60	1.40	1.43	.88	1.33	1.30	1.10	1.20	16.20	22.50	15.00	15.70	17.00	17.00	20.00	**20.40**
Md.	1.26	1.26	1.40	1.60	1.20	1.35	.72	1.51	1.26	1.15	1.20	15.48	22.40	14.40	15.20	15.30	16.20	19.08	**19.44**
Va.	1.16	1.25	1.40	1.30	1.30	1.19	.64	1.20	1.27	.72	1.35	15.54	20.50	15.20	15.50	17.20	15.70	16.14	**21.20**
W. Va.	1.25	1.40	1.45	1.45	1.25	1.20	.66	1.38	1.25	.92	1.50	15.09	20.00	15.00	14.90	17.20	15.00	17.27	**22.50**
N. C.	1.41	1.54	1.50	1.50	1.38	1.50	1.05	1.30	1.31	1.15	1.85	15.78	17.00	16.70	16.50	17.10	16.50	20.55	**30.52**
S. C.	1.25	1.46	1.50	1.25	1.23	1.25	1.08	1.15	1.16	1.15	1.30	16.44	17.00	18.00	18.70	17.00	15.60	20.06	**20.28**
Ga.	1.45	1.65	1.75	1.75	1.35	1.40	1.35	1.35	1.40	1.35	1.15	16.35	17.00	17.00	17.90	16.20	15.10	23.16	**17.36**
Fla.	1.34	1.50	1.35	1.35	1.38	1.33	1.30	1.25	1.35	1.35	1.20	16.88	18.50	18.10	18.20	17.20	16.00	23.41	**19.20**
Ohio	1.32	1.22	1.45	1.53	1.43	1.39	.98	1.36	1.30	1.13	1.44	12.66	18.90	13.00	12.80	13.40	12.70	17.07	**18.29**
Ind.	1.25	1.10	1.35	1.50	1.40	1.30	.94	1.37	1.00	1.00	1.50	12.31	16.80	11.40	14.10	14.10	11.00	15.02	**16.50**
Ill.	1.22	.98	1.40	1.53	1.45	1.33	.82	1.30	.98	.85	1.54	12.25	17.00	12.60	14.10	14.40	10.80	14.47	**16.63**

[1] Based upon farm price Dec. 1.

HAY—Continued.

TABLE 79.—*Hay: Yield per acre, price per ton Dec. 1, and value per acre, by States*—Continued.

State.	Average yield per acre (tons).											Farm price per ton (dollars).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
Mich	1.28	1.28	1.25	1.45	1.30	1.30	1.16	1.33	1.05	1.28	1.40	12.36	17.00	12.70	13.10	12.00	12.20	16.68	17.08
Wis	1.48	1.35	1.35	1.70	1.53	1.00	1.20	1.60	1.62	1.75	1.75	11.12	15.60	12.10	11.10	9.30	9.90	17.49	17.32
Minn	1.57	1.70	1.70	1.68	1.75	1.00	1.00	1.53	1.50	1.89	1.91	7.09	11.90	6.40	6.60	6.10	6.40	10.44	12.22
Iowa	1.40	1.35	1.40	1.70	1.64	1.05	.80	1.40	1.48	1.38	1.80	8.78	12.50	9.50	9.60	10.10	8.70	12.31	15.66
Mo	1.10	.78	1.40	1.50	1.35	1.30	.60	1.30	.60	.70	1.52	10.34	13.30	9.80	14.50	13.60	8.50	10.18	12.92
N. Dak	1.26	1.45	1.30	1.30	1.37	.55	1.10	1.40	1.14	1.45	1.50	5.76	7.00	5.50	5.80	5.20	5.70	6.75	8.55
S. Dak	1.36	1.50	1.40	1.50	1.50	.80	.55	1.46	1.20	1.70	2.00	5.84	8.50	6.10	6.50	5.70	5.30	7.35	10.60
Nebr	1.48	1.40	1.50	1.55	1.50	1.00	.85	1.35	1.34	1.69	2.60	7.12	9.70	8.40	8.70	6.90	5.80	10.36	15.08
Kans	1.36	1.28	1.15	1.50	1.45	1.15	.85	1.50	.90	1.51	2.30	7.60	9.90	7.60	12.50	7.40	5.60	10.24	12.88
Ky	1.21	1.35	1.35	1.35	1.36	1.29	.95	1.23	.87	.95	1.40	13.88	17.30	13.70	16.50	16.00	12.50	15.95	17.50
Tenn	1.36	1.51	1.50	1.50	1.50	1.40	1.00	1.30	1.21	1.20	1.47	14.60	16.70	15.80	16.20	17.00	13.90	19.20	20.43
Ala	1.50	1.95	1.80	1.60	1.50	1.43	1.40	1.25	1.36	1.31	1.45	13.56	12.80	14.60	14.20	13.80	12.40	18.49	17.98
Miss	1.50	1.90	1.60	1.50	1.47	1.42	1.50	1.48	1.33	1.45	1.40	11.92	11.00	12.50	13.50	12.00	11.00	17.54	15.40
La	1.67	1.93	2.00	1.40	1.50	1.75	1.30	1.65	1.50	1.90	1.75	11.92	12.00	12.70	12.50	12.00	10.30	19.65	18.02
Tex	1.39	1.80	1.30	1.65	.95	1.15	1.00	1.40	1.16	1.75	1.70	10.32	11.90	10.40	11.80	9.80	7.90	14.22	13.43
Okla	1.23	1.40	1.20	1.45	.90	1.05	.80	1.25	.85	1.13	2.30	7.22	8.00	7.40	10.40	7.90	5.60	8.45	12.88
Ark	1.32	1.60	1.25	1.50	1.25	1.35	1.15	1.23	1.20	1.05	1.60	11.49	13.00	12.00	13.50	12.90	10.30	14.86	16.48
Mont	1.89	1.85	1.70	2.00	1.79	1.40	2.00	1.90	1.80	2.50	2.00	9.34	10.00	8.30	9.60	8.70	7.50	18.46	15.00
Wyo	2.16	2.25	2.10	2.00	2.40	2.40	2.10	1.90	1.90	2.30	2.20	8.50	10.30	8.60	6.70	7.50	7.80	19.59	17.16
Colo	2.30	2.50	2.70	2.50	2.50	2.00	2.00	2.19	2.05	2.40	2.20	9.16	9.30	8.70	10.00	7.40	7.60	19.50	16.72
N. Mex	2.30	2.50	2.05	2.00	2.60	2.10	2.60	2.33	2.08	2.50	2.20	10.63	13.00	8.50	12.10	9.30	8.80	25.23	19.36
Ariz	3.27	3.50	2.90	3.20	3.30	2.10	3.86	3.40	4.00	3.20	3.20	11.74	12.00	12.00	11.00	8.80	9.60	37.32	30.72
Utah	2.74	4.00	2.10	2.50	2.90	3.00	2.50	2.78	2.33	2.75	2.50	8.17	9.00	8.00	9.10	7.70	8.00	22.82	20.00
Nev	2.64	1.50	1.75	2.00	2.35	3.40	3.40	3.00	2.75	3.25	3.00	9.31	9.50	8.70	11.00	8.30	7.50	30.47	22.50
Idaho	2.86	2.95	2.40	3.25	2.85	3.00	3.10	2.80	2.90	2.65	2.70	7.78	7.60	6.30	7.20	7.30	7.70	21.68	20.79
Wash	2.23	2.38	2.10	2.25	2.10	2.10	2.40	2.20	2.30	2.20	2.30	12.15	12.00	10.10	10.90	11.00	10.80	26.65	24.84
Oreg	2.09	2.18	2.00	2.00	2.05	2.10	2.10	2.20	2.10	2.00	2.20	9.68	9.60	8.30	9.00	9.20	9.50	20.23	20.90
Cal	1.70	1.85	1.75	1.35	1.70	1.83	1.75	1.53	1.50	1.95	1.80	11.56	10.90	13.70	13.50	8.20	11.20	18.77	20.16
U. S.	1.41	1.35	1.45	1.52	1.42	1.36	1.14	1.47	1.31	1.43	1.68	11.41	14.29	11.79	12.43	11.12	10.70	16.44	17.93

[1] Based upon farm price Dec. 1.

TABLE 80.—*Hay: Farm price per ton on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Atlantic States.		South Atlantic States.		N. Central States east of Miss. R.		N. Central States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Dolls.	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*	*Dolls.*
January	11.29	12.42	15.39	15.46	16.97	16.05	12.17	12.68	8.80	9.68	13.06	14.51	8.30	10.32
February	11.69	12.41	15.94	15.34	17.15	15.91	12.43	12.30	9.09	9.54	13.50	15.09	8.84	10.73
March	11.71	12.37	15.79	15.20	17.69	16.51	12.57	12.06	9.38	9.58	13.72	15.24	8.53	10.68
April	11.74	12.20	15.41	15.20	17.79	16.64	12.39	12.01	9.72	9.58	13.95	15.38	8.74	9.97
May	11.82	12.32	15.59	15.52	18.35	16.66	12.62	12.40	9.66	9.77	13.97	15.33	8.70	9.68
June	11.96	12.34	15.74	15.54	18.38	16.55	12.73	12.50	9.57	9.98	13.90	15.44	9.08	9.43
July	11.70	12.01	16.40	15.49	17.90	16.96	12.66	12.27	8.74	9.41	13.34	14.42	8.55	8.96
August	11.02	11.52	16.64	14.85	16.57	16.91	11.31	12.16	7.59	8.85	11.98	14.44	8.32	8.11
September	10.80	11.91	16.64	15.43	16.20	17.13	11.04	12.82	7.19	9.04	11.41	14.62	8.19	8.32
October	10.69	11.77	16.22	15.06	15.85	16.91	11.00	12.86	7.07	9.07	11.00	14.12	8.40	8.21
November	10.83	11.57	16.16	14.83	15.85	16.76	11.00	12.40	7.11	8.82	10.73	13.80	9.00	8.30
December	10.70	11.12	16.21	15.18	15.67	16.71	11.28	12.05	7.03	8.30	10.61	13.09	9.19	8.39

HAY—Continued.

Table 81.—*Hay: Wholesale price (baled) per ton, 1900–1915.*

Date.	Chicago.		Cincinnati.		St. Louis.		New York.		San Francisco.	
	No. 1 timothy.		No. 1 timothy.		No. 1 timothy.		No. 1 timothy.[1]		No. 1 wheat, light bales.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$10.00	$14.00	$11.50	$15.00	$9.75	$14.50	$0.87½	$0.97½	$6.50	$13.50
1901	11.50	15.00	11.50	15.50	11.50	17.50	.87½	1.00	8.50	13.50
1902	10.00	17.50	11.00	16.50	9.50	16.00	17.00	22.00	9.00	16.00
1903	10.00	15.00	11.50	19.50	9.50	25.00	16.00	26.00	10.00	16.00
1904	9.00	15.00	11.00	15.50	10.00	13.50	15.00	19.00	9.00	18.00
1905	10.00	12.50	10.00	13.50	9.00	15.50	14.00	19.00	8.00	16.50
1906	9.50	18.00	11.00	19.50	11.00	20.00	15.00	23.00	9.50	23.00
1907	13.00	21.50	14.00	22.75	14.00	24.00	1.00	1.25	10.00	26.00
1908	10.00	14.00	11.50	16.50	10.00	18.00	14.00	21.00	11.00	22.50
1909	11.00	17.00	12.00	17.25	11.50	18.50	15.50	21.00	12.50	28.00
1910	12.50	21.00	17.00	22.50	15.00	20.50	21.00	28.00	7.50	19.00
1911	15.00	25.00	18.00	26.50	14.50	29.00	20.50	30.00	7.50	20.00
1912	13.00	28.00	15.50	31.00	13.00	31.00	21.50	32.00	13.00	25.00
1913	13.00	19.50	14.00	21.00	12.00	24.00	19.50	23.00	16.00	26.00
1914	13.00	18.50	17.50	21.50	14.50	23.00	18.50	25.00	11.00	21.00
1915.										
January	15.00	17.50	18.00	19.25	17.00	19.50	21.00	22.50	11.00	12.00
February	15.00	16.00	18.00	19.00	16.00	21.00	20.50	21.50	11.00	12.00
March	14.50	16.00	18.00	19.50	17.50	22.00	18.00	22.00	11.00	12.00
April	14.50	18.00	18.00	20.00	18.00	21.00	20.50	22.50	11.00	12.50
May	16.50	17.50	19.00	21.00	18.00	22.00	22.00	25.00	11.50	12.50
June	17.00	18.00	19.00	22.00	17.00	20.50	23.50	25.00	11.50	14.00
July	17.50	21.00	18.00	22.50	12.50	24.00	24.00	29.00	13.00	14.50
August	12.00	21.00	16.00	23.00	12.00	23.00	26.00	31.50	13.50	14.50
September	14.00	17.00	16.00	19.00	12.00	18.00	24.50	26.00	13.50	16.00
October	14.00	18.00	13.00	21.00	13.00	18.00	24.00	26.00	14.50	18.00
November	14.50	16.50	18.50	19.50	13.00	18.00	25.00	26.00	17.00	18.00
December	14.50	16.50	18.00	20.00	14.00	19.00	24.00	26.00	17.00	18.00
Year	12.00	21.00	13.00	23.00	12.00	24.00	18.00	31.50	11.00	18.00

[1] Per hundred pounds, 1900, 1901, and 1907.

CLOVER AND TIMOTHY SEED.

TABLE 82.—*Clover and timothy seed: Wholesale price, 1900–1915.*

Date.	Clover (bushels of 60 pounds).								Timothy.							
	Cincinnati.		Chicago.		Toledo.		Detroit.		Cincinnati.		Chicago.		Milwaukee.		St. Louis.	
	Prime.		Poor to prime.[1]		Poor to choice.[2]				Per bushel (of 45 pounds).		Poor to choice (per 100 pounds).[3]		Per 100 pounds.		Poor to prime (per 100 pounds).	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$4.00	$6.00	$2.40	$6.30	$4.95	$7.85	$4.80	$7.10	$1.03	$2.00	$2.32½	$4.65	$1.90	$4.50	.....	.....
1901	4.50	6.60	2.40	6.90	5.15	7.40	5.15	7.35	1.70	2.90	3.35	6.55	3.00	6.25	.....	.....
1902	4.11	5.76	2.40	6.81	3.90	7.10	4.90	6.10	1.98	3.96	2.00	7.35	2.50	6.75	$2.40	$6.40
1903	5.00	7.10	2.40	7.50	3.05	7.70	6.45	7.50	1.20	1.70	1.75	4.35	2.00	3.75	2.00	3.60
1904	4.80	7.50	3.60	7.80	2.50	7.95	6.20	7.95	1.15	1.35	1.75	3.25	2.00	3.15	2.00	2.80
1905	5.70	7.75	4.80	8.64	3.00	8.85	6.30	8.75	1.15	1.60	1.50	3.75	2.25	3.50	2.00	3.70
1906	4.50	7.50	3.90	8.49	3.00	8.72½	6.25	8.70	1.30	1.85	2.00	4.50	2.40	4.25	2.40	4.00
1907	7.00	8.50	4.80	10.20	3.00	11.00	8.00	10.75	1.50	2.25	3.00	4.75	3.25	4.65	3.00	4.60
1908	4.00	11.00	3.60	14.40	3.90	13.55	4.60	13.00	1.35	2.15	3.25	4.85	2.50	4.60	2.00	4.50
1909	4.00	8.50	4.20	9.00	5.17½	9.55	5.20	9.25	1.30	1.65	2.50	4.00	2.50	3.80	1.50	3.70
1910	5.49	8.49	6.50	17.00	2.40	10.30	6.40	10.00	1.30	4.25	2.50	9.75	2.75	9.50	2.50	9.50
1911	7.00	11.00	4.80	12.45	3.00	12.80	8.60	12.50	3.50	6.90	7.00	16.25	8.00	15.50	5.00	15.75
1912	9.00	13.00	4.80	13.35	3.00	14.20	10.25	14.00	1.50	6.50	3.80	16.25	2.50	15.50	2.75	15.50
1913	5.00	11.50	4.20	13.20	1.60	13.85	7.50	13.40	1.50	2.25	2.50	5.90	2.50	5.50	2.00	5.50
1914	5.00	9.25	7.00	18.50	2.00	11.40	7.40	11.25	1.40	2.70	3.00	7.85	3.00	7.00	2.00	7.00
1915.																
January	7.40	9.65	10.00	14.75	8.80	9.55	9.30	9.60	2.60	3.60	5.50	7.00	5.50	6.50	.....	.....
February	7.40	9.65	9.00	14.75	8.40	9.25	8.90	9.35	2.60	3.60	4.50	7.00	4.50	7.00	.....	.....
March	7.00	9.65	7.50	14.25	7.80	8.90	8.15	9.15	2.00	3.60	4.00	6.75	4.50	5.50	.....	.....
April	6.90	8.50	7.00	13.00	7.45	8.25	7.90	8.40	2.00	3.25	4.00	6.50	4.50	6.00	.....	.....
May	6.50	8.40	7.00	13.00	7.25	7.75	7.85	8.00	2.00	3.25	4.75	6.75	4.75	6.00	.....	.....
June	6.50	8.25	7.00	12.75	7.25	7.90	7.85	8.20	2.00	3.20	5.00	6.50	4.75	7.00	.....	.....
July	6.50	8.35	7.00	13.50	7.40	8.15	7.70	8.25	1.90	3.20	4.50	6.35	4.50	6.50	.....	.....
August	6.50	8.50	9.00	16.25	7.85	9.55	8.20	9.60	1.90	3.30	4.50	7.25	4.50	7.00	.....	.....
September	6.75	8.50	9.50	19.25	8.85	12.60	9.35	11.65	1.90	3.30	4.50	7.75	5.00	7.50	.....	.....
October	9.20	11.00	9.00	20.50	11.20	13.10	11.75	12.40	2.20	3.60	4.50	7.50	4.75	7.75	.....	.....
November	8.60	12.20	9.00	19.25	11.00	12.00	11.90	12.25	2.10	3.75	5.50	7.75	4.75	7.75	.....	.....
December	8.50	12.15	9.00	19.75	9.35	12.30	12.00	12.55	2.20	3.75	5.00	8.00	4.75	8.00	.....	.....
Year	6.50	12.20	7.00	20.50	7.25	13.00	8.00	12.40	1.90	3.75	4.00	8.00	4.50	8.00	.....	.....

[1] Poor to choice to 1905.

[2] Prime, 1901 to 1907.

[3] Prime, 1902 to 1904; poor to prime, 1905–1906.

COTTON.

Table 83.—*Cotton: Area and production of undermentioned countries, 1912–1914.*

[Bales of 478 pounds, net.]

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bales.*	*Bales.*	*Bales.*
United States[1]	34,283,000	37,089,000	36,832,000	13,703,421	14,156,486	16,134,930
Porto Rico	(2)	(2)	(2)	[3] 416	[3] 569	[3] 693
Total	....	....	....	13,703,837	14,157,055	16,135,623
West Indies:						
British—						
Bahamas	(2)	(2)	(2)	[4] 28	[4] 28	(2)
Barbados	3,971	2,985	(2)	953	888	535
Grenada	(2)	(2)	(2)	[4] 796	[4] 838	[4] 749
Jamaica	(2)	(2)	(2)	[4] 76	[4] 145	[4] 67
Leeward Islands	(2)	(2)	(2)	[4] 2,271	[4] 2,574	[4] 2,637
St. Lucia	(2)	(2)	(2)	[4] 7	[4] 8	[4] 11
St. Vincent	6,105	5,444	(2)	[4] 946	[4] 1,015	[4] 884
Trinidad and Tobago	(2)	(2)	(2)	[4] 28	[4] 15	(2)
Danish (St. Croix)	(2)	(2)	(2)	[4] 276	[4] 745	(2)
Haiti	(2)	(2)	(2)	[4] 9,077	[4] 8,970	(2)
SOUTH AMERICA.						
Argentina	4,458	6,919	5,478	(2)	(2)	(2)
Brazil	(2)	(2)	(2)	320,000	320,000	385,000
Chili	(2)	334	(2)	(2)	740	(2)
Ecuador	(2)	(2)	(2)	(2)	[4] 757	(2)
Peru	(2)	(2)	(2)	[4] 88,694	[4] 110,314	105,617
EUROPE.						
Bulgaria	1,885	(2)	(2)	646	(2)	(2)
Malta	1,144	1,042	(2)	508	472	411
ASIA.						
India:						
British[5]	21,615,000	22,028,000	25,020,000	2,751,464	3,857,741	4,238,494
Native States	1,550,636	1,472,609	(2)	(2)	(2)	(2)
Total	23,165,636	23,500,609	....	....	....	....
Ceylon	(6)	(6)	(2)	[4] 1,490	28	[4] 47
Chosen (Korea)	126,728	(2)	(2)	27,934	(2)	(2)
Cyprus	(2)	(2)	(2)	[4] 7,632	[4] 9,655	9,498
Dutch East Indies	(2)	(2)	(2)	[4] 17,000	(2)	(2)
Indo-China	(2)	(2)	(2)	[4] 14,459	(2)	(2)
Japan	6,758	6,178	4,942	5,057	4,462	2,979
Philippine Islands	[7] 7,544	[7] 7,544	[7] 7,544	[7] 6,098	[7] 6,098	[7] 6,098
Russia, Asiatic:						
Transcaucasia	(2)	310,466	346,912	118,735	119,476	127,000
Central Asia	(2)	1,382,743	1,475,734	867,538	956,763	1,050,595
Total	....	1,693,209	1,822,646	986,273	1,076,239	1,177,595
Siam	(2)	(2)	(2)	4,363	4,686	(2)
AFRICA.						
British Africa:						
Northern Rhodesia	(2)	(2)	(2)	[4] 179	[4] 483	[4] 475
Nyasaland Protectorate	23,755	25,697	(2)	[4] 6,773	[4] 5,023	(2)
East Africa	(2)	(2)	(2)	[4] 910	[4] 282	(2)
Gold Coast	(2)	(2)	(2)	[4] 43	[4] 19	16
Nigeria	(2)	(2)	(2)	[4] 9,148	[4] 13,308	11,820
Uganda	(2)	(2)	(2)	[4] 22,003	[4] 23,414	27,461
Union of South Africa	(2)	(2)	(2)	[4] 67	[4] 68	[4] 87
Egypt	1,787,436	1,788,474	1,821,970	1,560,938	1,565,290	1,450,508

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[1] Linters not included. Quantity of linters produced: 609,594 bales in 1912, 638,881 in 1913, and 791,464 in 1914.

[2] No official statistics.

[3] Exports to foreign countries plus shipments to the United States.

[4] Exports.

[5] Includes Feudatory States.

[6] Less than 500 acres.

[7] Census of 1902.

COTTON—Continued.

TABLE 83.—*Cotton: Area and production of undermentioned countries, 1912–1914*—Continued.

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
AFRICA—continued.						
French Africa:	*Acres.*	*Acres.*	*Acres.*	*Bales.*	*Bales.*	*Bales.*
Algeria	1,045	(1)	(1)	830	553	(1)
Tunis	618	(1)	(1)	461	(1)	(1)
Dahomey	(1)	(1)	(1)	577	809	(1)
Madagascar	(1)	(1)	(1)	25	(1)	(1)
Senegal	(1)	(1)	(1)	92	36	(1)
Ivory Coast	(1)	(1)	(1)	(1)	183	(1)
Upper Senegal and Niger	(1)	(1)	(1)	461	455	(1)
Somali Coast	(1)	(1)	(1)	[2] 1	(1)	(1)
German Africa:						
East Africa	35,770	(1)	(1)	[2] 8,678	[2] 10,109	(1)
Togo	(1)	(1)	(1)	[2] 2,541	[2] 2,322	(1)
Italian Africa—Eritrea	(1)	(1)	(1)	[3] 1,247	(1)	(1)
Sudan (Anglo-Egyptian)	(1)	(1)	(1)	[2] 12,128	[2] 10,737	(1)
OCEANIA.						
British:						
Solomon Islands	(1)	(1)	(1)	[2] 20	[2] 24	(1)
Queensland	441	(1)	(1)	105	25	13
French:						
New Caledonia	(1)	(1)	(1)	[2] 923	1,190	[2] 1,596
Tahiti	(1)	(1)	(1)	32	73	(1)

[1] No official statistics.
[2] Exports.
[3] Imports from Eritrea into Italy.

TABLE 84.—*Cotton: Total production of countries for which estimates were available, 1900–1910.*

Year.	Production.	Year.	Production.	Year.	Production.	Year.	Production.
	Bales.[1]		*Bales.*[1]		*Bales.*[1]		*Bales.*[1]
1900	15,893,591	1904	21,005,175	1908	23,688,292	1912	....
1901	15,926,048	1905	18,342,075	1909	20,679,334	1913	....
1902	17,331,503	1906	22,183,148	1910	22,433,269	1914	....
1903	17,278,881	1907	18,328,613	1911	....		

[1] Bales of 478 pounds, net.

TABLE 85.—*Cotton: Acreage harvested, by States, 1906–1915.*

[Thousands of acres.]

State.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915[1]
Virginia	36	23	28	25	33	43	47	47	45	36
North Carolina	1,374	1,408	1,458	1,359	1,478	1,624	1,545	1,576	1,527	1,250
South Carolina	2,389	2,485	2,545	2,492	2,534	2,800	2,695	2,790	2,861	2,400
Georgia	4,610	4,566	4,848	4,674	4,873	5,504	5,335	5,318	5,433	4,700
Florida	283	209	265	237	257	308	224	188	221	198
Alabama	3,659	3,148	3,591	3,471	3,560	4,017	3,730	3,760	4,007	3,400
Mississippi	3,408	3,081	3,395	3,291	3,317	3,340	2,889	3,067	3,054	2,650
Louisiana	1,740	1,540	1,550	930	975	1,075	929	1,244	1,299	1,090
Texas	8,894	8,478	9,316	9,660	10,060	10,943	11,338	12,597	11,931	10,200
Arkansas	2,098	1,902	2,296	2,218	2,238	2,363	1,991	2,502	2,480	2,150
Tennessee	814	693	754	735	765	837	783	865	915	780
Missouri	91	63	87	79	100	129	103	112	145	102
Oklahoma	1,982	2,064	2,311	1,767	2,204	3,050	2,665	3,009	2,847	1,950
California	....	....	....	....	9	12	9	14	47	34
All other	....	....	....	....	....	....	....	....	20	17
United States	31,378	29,660	32,444	30,938	32,403	36,045	34,283	37,089	36,832	30,957

[1] Preliminary estimate.

COTTON—Continued.

TABLE 86.—*Cotton: Production of lint (excluding linters) in 500-pound gross weight bales, by States, and total value of crop, 1906 to 1915.*

[Thousands of bales and dollars. As finally reported by U. S. Bureau of the Census.]

State.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915 [1]
Virginia	14	9	12	10	15	30	24	23	25	16
North Carolina	579	605	647	601	706	1,076	866	793	931	708
South Carolina	876	1,119	1,171	1,100	1,164	1,649	1,182	1,378	1,534	1,160
Georgia	1,593	1,816	1,931	1,804	1,767	2,769	1,777	2,317	2,718	1,900
Florida	56	50	62	54	59	83	53	59	81	50
Alabama	1,262	1,113	1,346	1,024	1,194	1,716	1,342	1,495	1,751	1,050
Mississippi	1,531	1,468	1,656	1,083	1,263	1,204	1,046	1,311	1,246	940
Louisiana	988	676	470	253	246	385	376	444	449	360
Texas	4,174	2,300	3,815	2,523	3,049	4,256	4,880	3,945	4,592	3,175
Arkansas	941	775	1,033	714	821	939	792	1,073	1,016	785
Tennessee	306	275	344	247	332	450	277	379	384	295
Missouri	54	36	62	45	60	97	56	67	82	52
Oklahoma	898	862	691	545	923	1,022	1,021	840	1,262	630
All other	2	3	2	2	10	17	11	32	64	40
United States	13,274	11,107	13,242	10,005	11,609	15,693	13,703	14,156	16,135	11,161
Total value of crop	$640,310	$613,630	$588,810	$688,350	$809,710	$749,890	$786,800	$885,350	$591,130	$602,393

[1] Preliminary estimate.

TABLE 87.—*Cotton: Condition of crop, United States, monthly, 1894–1915.*

[Prior to 1901 figures of condition relate to first of month following dates indicated.]

Year.	May 25.	June 25.	July 25.	Aug. 25.	Sept. 25.	Year.	May 25.	June 25.	July 25.	Aug. 25.	Sept. 25.
	P. ct.	*P. ct*	*P. ct.*	*P. ct.*	*P. ct.*		*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1894	88.3	89.6	91.8	85.9	82.7	1905	77.2	77.0	74.9	72.1	71.2
1895	81.0	82.3	77.9	70.8	65.1	1906	84.6	83.3	82.9	77.3	71.6
1896	97.2	92.5	80.1	64.2	60.7	1907	70.5	72.0	75.0	72.7	67.7
1897	83.5	86.0	86.9	78.3	70.0	1908	79.7	81.2	83.0	76.1	69.7
1898	89.0	91.2	91.2	79.8	75.4	1909	81.1	74.6	71.9	63.7	58.5
1899	85.7	87.8	84.0	68.5	62.4	1910	82.0	80.7	75.5	72.1	65.9
1900	82.5	75.8	76.0	68.2	67.0	1911	87.8	88.2	89.1	73.2	71.1
1901	81.5	81.1	77.2	71.4	61.4	1912	78.9	80.4	76.5	74.8	69.6
1902	95.1	84.7	81.9	64.0	58.3	1913	79.1	81.8	79.6	68.2	64.1
1903	74.1	77.1	79.7	81.2	65.1	1914	74.3	79.6	76.4	78.0	73.5
1904	83.0	88.0	91.6	84.1	75.8	1915	80.0	80.3	75.3	69.2	60.8

TABLE 88.—*Cotton: Yield per acre, price per pound Dec. 1, and value per acre, by States.*

State.	Yield per acre (pounds of lint).											Farm price per pound (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915 [2]	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
Va.	228	185	190	210	190	212	330	250	240	265	212	10.9	9.0	12.0	13.1	7.3	11.4	27.95	24.17
N. C.	244	201	205	211	210	227	315	267	239	290	270	10.8	8.8	12.2	12.6	6.9	11.2	28.48	30.24
S. C.	224	175	215	219	210	216	280	209	235	255	231	10.9	8.8	12.4	12.7	6.9	11.3	25.73	26.10
Ga.	194	165	190	190	184	173	240	159	208	239	193	11.0	8.9	12.4	12.8	6.9	11.4	21.75	22.00
Fla.	123	95	115	112	110	110	130	113	150	175	121	15.7	12.0	15.7	17.0	12.2	14.8	20.66	17.91
Ala.	174	165	169	179	142	160	204	172	190	209	148	10.8	8.8	12.1	12.7	6.7	11.1	19.92	16.43
Miss.	193	215	228	233	157	182	172	173	204	195	170	11.0	9.2	12.3	12.6	6.8	11.5	20.45	19.55
La.	173	272	210	145	130	120	170	193	170	165	158	10.7	8.9	11.5	11.7	6.9	11.2	17.18	17.70
Tex.	170	225	130	196	125	145	186	206	150	184	149	10.5	8.6	11.5	11.5	6.8	11.1	17.95	16.54
Ark.	191	215	195	215	153	175	190	190	205	196	175	10.8	8.9	12.3	11.6	6.6	11.6	20.44	20.30
Tenn.	197	180	190	218	158	207	257	169	210	200	181	10.8	8.8	12.4	12.7	6.4	11.3	22.45	20.45
Mo.	288	285	275	340	271	285	360	260	286	270	244	10.4	8.8	11.3	11.5	6.5	11.0	29.71	26.84
Okla.	175	217	200	143	147	200	160	183	132	212	155	10.2	8.0	11.3	11.4	6.5	11.3	17.78	17.52
Cal.	442	.....	.....	.....	.....	335	390	450	500	500	479	10.8	7.5	12.5	13.0	7.0	11.2	46.01	53.65
U. S.	186.3	202.5	178.3	194.9	154.3	170.7	207.7	190.9	182.0	209.2	172.5	10.8	8.8	11.9	12.2	6.8	11.2	21.05	19.46

[1] Based upon farm price Dec. 1.

[2] Preliminary.

COTTON—Continued.

TABLE 89.—*Cotton: Farm price per pound on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		South Atlantic States.		N. Cent. States west of Miss. R.		South Central States.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	6.6	11.7	6.7	12.1	6.2	....	6.5	11.5	....	....
February	7.4	11.9	7.6	12.7	6.9	12.1	7.3	11.6	10.0	....
March	7.4	12.6	7.5	14.9	7.1	11.6	7.4	11.5	8.6	....
April	8.1	11.9	8.3	12.7	7.0	11.6	8.0	11.5	7.0	....
May	9.1	12.2	9.4	12.8	8.0	11.5	9.0	11.8	9.1	....
June	8.6	12.4	8.9	13.2	8.0	12.0	8.5	12.0	....	....
July	8.6	12.4	8.7	13.1	8.0	12.0	8.5	12.1	....	....
August	8.1	12.4	8.2	12.9	8.2	12.1	8.0	12.2	7.0	....
September	8.5	8.7	8.6	8.5	8.5	8.0	8.5	8.8	....	....
October	11.2	7.8	11.5	8.0	10.8	....	11.1	7.7	11.0	7.5
November	11.6	6.3	11.9	6.5	11.8	6.2	11.7	6.2	....	10.0
December	11.2	6.8	11.4	6.9	11.0	6.5	11.3	6.7	11.2	7.0

TABLE 90.—*Cotton: Closing price of middling upland per pound, 1900–1915.*

Date.	New York.		New Orleans.		Memphis.		Galveston.		Savannah.		Charleston.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	7¼	11	7¼	11⅛	7⅜	11	7¼	10	7 5/16	10¾	7¼	10¾
1901	7	12	7¼	9 11/16	7⅛	9⅝	7⅜	9 11/16	7⅛	9⅝	7⅛	9⅞
1902	8 3/16	9⅞	7⅝	9¾	7	9½	7¾	9⅝	7 9/16	9 9/16	7 3/16	9⅜
1903	8.85	14.10	8 7/16	13⅝	8½	13½	8⅝	13⅜	8⅜	13⅜	8¼	13½
1904	6.85	17.25	6½	16 7/16	6¾	16½	6⅝	16	6½	16¼	6½	16
1905	7.00	12.60	6⅝	12 1/16	6¾	12⅛	6¾	12	6⅝	11 11/16	6⅝	11 5/16
1906	9.60	12.25	9⅜	11 11/16	9⅜	11 11/16	9¼	11 9/16	8⅞	11¾	8¾	11⅜
1907	10.60	13.55	10¼	13 9/16	10¼	13½	10½	13 9/16	9⅞	13 5/16	9¾	13
1908	9.00	12.25	8 11/16	12¼	8¾	12⅜	8¾	12¼	8¼	11⅝	8¼	11⅝
1909	9.25	16.15	8⅞	15¾	9	15⅝	9	15¾	8 11/16	15⅞	8¾	15 3/16
1910	13.60	19.75	13¼	15¾	13½	15⅝	13⅜	15⅞	13 3/16	15⅝	13	15⅝
1911	9.20	16.15	9 1/16	15 11/16	9¼	15 7/16	9¼	15⅝	8⅝	15½	8¾	15⅝
1912	9.35	13.40	9 3/16	13¼	9 7/16	13¼	9⅜	13 5/16	8⅝	12¾	8¾	12¾
1913	11.70	14.50	11⅞	14	11¾	13¾	11¾	14⅜	11½	14⅛	11¾	13⅞
1914	7.25	14.50	6½	13 15/16	6½	13¾	6⅝	14	6½	13⅞	6½	13½
1915.												
January	7.90	8.70	7⅜	8⅛	7⅛	8½	7¾	8 7/16	7⅜	8¼	7¼	8⅜
February	8.35	8.70	7.75	8 3/16	7.76	8	8.30	8½	8	8¾	7¾	8⅛
March	8.25	9.65	7.75	9.06	7.88	8.87	8.25	9.35	8	8⅞	7¾	8¾
April	9.80	10.60	9.06	9.68	8.87	9.50	9.35	10.10	8⅞	9⅝	8¾	9⅝
May	9.50	10.40	9.00	9.43	9.12	9.50	9.00	10.00	9¼	9¾	9	9⅝
June	9.45	9.85	9.00	9.38	8.75	9.12	8.95	9.35	8 15/16	9⅛	....	9
July	8.90	9.60	8.50	9.00	8.62	8.82	8.50	9.00	8½	8 15/16	....	8½
August	9.20	9.85	8.69	9.38	8.75	9.25	8.75	9.50	8⅜	9	....	....
September	9.75	12.40	9.31	11.75	9.25	11.75	9.50	11.90	9⅛	11⅝	9	11⅝
October	11.85	12.75	11.75	12.13	11.75	12.25	11.75	12.45	11½	12½	11½	12
November	11.60	12.50	11.25	12.00	11.38	11.88	11.50	12.40	11½	12½	11½	12
December	11.95	12.75	11.69	12.13	11.75	12.25	12.00	12.60	12	12⅛	11¾	12
Year	7.90	12.75	7⅜	12.13	7⅛	12.25	7¾	12.60	7⅜	12½	7¼	12

COTTON—Continued.

TABLE 91.—*Cotton: International trade, calendar years 1912–1914.*

[Expressed in bales of 500 pounds gross weight or 478 pounds net. The figures for cotton refer to ginned and unginned cotton and linters, but not to mill waste, cotton batting, *scarto* (Egypt and Sudan). Wherever unginned cotton has been separately stated in the original reports it has been reduced to ginned cotton in this statement at the ratio of 3 pounds unginned to 1 pound ginned. See "General note" p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Bales.	*Bales.*	*Bales.*		*Bales.*	*Bales.*	*Bales.*
Belgium..........	242	298	....	Netherlands........	163	150	....
Brazil..............	77	173	140	Persia [1]............	129	[2] 129	....
British India.......	1,689	2,223	2,791	Peru................	89	110	79
China...............	225	206	184	United States......	11,663	9,376	6,873
Egypt...............	1,721	1,445	1,225	Other countries....	196	234	....
France..............	325	267	....				
Germany..........	247	243	....	Total.........	16,766	14,854	....

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Austria-Hungary...	1,021	953	....	Russia..............	830	908	647
Belgium...........	652	647	....	Spain...............	428	407	389
Canada.............	165	166	152	Sweden.............	100	99	....
France..............	1,597	1,518	....	Switzerland.........	121	126	....
Germany...........	2,502	2,404	....	United Kingdom...	5,193	4,010	3,447
Italy................	987	931	879	United States......	270	220	332
Japan...............	1,655	1,821	....	Other countries....	357	339	....
Mexico..............	18	[2] 18	....				
Netherlands........	324	317	....	Total.........	16,220	14,884	....

[1] Year beginning Mar. 21.

[2] Year preceding.

COTTONSEED OIL.

TABLE 92.—*Cottonseed oil: International trade, calendar years 1912–1914.*

[See "General note" p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Gallons.	*Gallons.*	*Gallons.*		*Gallons.*	*Gallons.*	*Gallons.*
Belgium...........	1,341	1,014	....	United States......	47,457	35,304	28,841
Egypt...............	359	619	491	Other countries....	40	59	....
France..............	172	271	....				
Netherlands........	40	31	....	Total.........	55,508	44,924	....
United Kingdom...	6,099	7,626	8,213				

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Algeria.............	118	[1] 118	....	Mexico..............	4,310	4,310	....
Australia...........	182	175	....	Netherlands........	7,048	7,765	....
Austria-Hungary...	127	16	....	Norway.............	1,554	1,542	1,881
Belgium...........	2,876	2,005	....	Roumania..........	593	[1] 593	....
Brazil..............	[2] 670	440	383	Senegal.............	382	[1] 382	....
Canada.............	2,911	4,104	4,079	Serbia [4]............	396	396	....
Egypt...............	345	118	74	Sweden.............	865	702	....
France..............	3,697	2,604	....	United Kingdom...	7,587	4,990	6,193
Germany...........	7,900	4,786	....	Uruguay [5].........	383	383	....
Italy................	5,388	3,957	702	Other countries....	4,306	6,466	....
Malta [3]............	261	278	....				
Martinique.........	262	[1] 262	....	Total.........	52,161	46,392	....

[1] Year preceding.

[2] Data for 1909.

[3] Year beginning Apr. 1.

[4] Data for 1911.

[5] Year beginning July 1. Data for 1910.

TOBACCO.

TABLE 93.—*Tobacco: Area and production of undermentioned countries, 1912–1914.*

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Pounds.*	*Pounds.*	*Pounds.*
United States	1,216,000	1,216,000	1,224,000	962,855,000	953,734,000	1,034,679,000
Canada:						
Ontario	[2] 7,000	6,000	5,000	7,500,000	8,000,000	6,000,000
Quebec	[2] 12,000	5,000	4,750	5,500,000	4,500,000	5,000,000
Total	[2] 19,000	11,000	9,750	13,000,000	12,500,000	11,000,000
Costa Rica	(1)	(1)	2,734	(1)	(1)	(1)
Cuba	(1)	(1)	(1)	42,030,000	72,585,000	72,585,000
Dominican Republic	(1)	(1)	(1)	18,000,000	28,000,000	(1)
Guatemala	(1)	(1)	1,236	(1)	(1)	(1)
Jamaica	804	969	(1)	(1)	(1)	(1)
Mexico	(1)	(1)	(1)	[3] 34,711,000	[3] 34,711,000	[3] 34,711,000
SOUTH AMERICA.						
Argentina	24,137	23,860	36,744	18,000,000	(1)	(1)
Brazil [4]	(1)	(1)	(1)	54,465,930	64,788,421	59,481,096
Chile	2,478	3,430	(1)	5,077,304	8,523,645	6,282,228
Uruguay	3,956	4,159	2,503	2,957,724	3,062,062	1,737,805
EUROPE.						
Austria-Hungary:						
Austria	8,456	8,263	(1)	12,489,279	13,692,771	(1)
Hungary	123,644	111,731	(1)	150,896,296	146,428,871	(1)
Bosnia-Herzegovina [5]	(1)	(1)	(1)	6,398,000	13,227,600	(1)
Total	....	....	....	169,783,575	173,349,242	....
Belgium	9,926	9,941	10,309	22,109,492	19,702,290	(1)
Bulgaria	26,193	17,297	(1)	17,636,800	13,227,600	(1)
Denmark	524	(1)	(1)	(1)	(1)	(1)
France	38,145	25,474	20,514	49,883,925	35,763,021	(1)
Germany	38,981	34,996	25,404	85,661,744	56,952,951	(1)
Italy	19,053	21,004	18,038	20,960,000	18,739,100	20,943,700
Netherlands	1,023	1,149	932	1,858,266	2,087,000	(1)
Roumania	22,941	27,122	27,070	13,145,809	20,941,275	16,970,129
Russia in Europe	140,957	116,319	(1)	237,405,692	201,988,930	(1)
Serbia	5,167	(1)	(1)	3,276,917	(1)	(1)
Sweden	741	(1)	(1)	1,300,714	1,646,836	(1)
Switzerland	791	791	618	1,212,530	1,327,169	815,702
ASIA.						
India:						
British [6]	998,943	964,726	1,001,671	(1)	(1)	(1)
Native States	49,859	68,717	(1)	(1)	(1)	(1)
Total	1,048,802	1,033,443	....	....	....	....
British North Borneo [4]	(1)	(1)	(1)	2,844,000	2,500,000	(1)
Ceylon	14,292	12,968	(1)	(1)	(1)	(1)
Chosen	43,830	(1)	(1)	28,116,013	(1)	(1)
Dutch East Indies:						
Java	460,719	(1)	(1)	[4] 134,143,000	(1)	(1)
Sumatra, East Coast of	(1)	(1)	(1)	[4] 48,284,000	[4] 45,024,000	(1)
Formosa	918	839	(1)	990,126	959,477	(1)
Japan	71,988	77,176	88,709	96,095,176	111,955,049	115,741,500
Philippine Islands	140,948	170,477	150,459	65,219,054	101,544,736	103,024,183
Russia, Asiatic	36,754	37,990	(1)	28,790,677	31,462,230	(1)
AFRICA.						
Algeria	22,733	(1)	(1)	21,556,138	(1)	(1)
Tunis	252	249	(1)	278,505	262,347	376,325
Nyasaland	7,411	10,496	(1)	3,391,360	4,159,680	(1)
Rhodesia	(1)	(1)	5,627	[7] 606,219	(1)	3,162,000
Union of South Africa	[7] 19,364	[7] 19,364	[7] 19,364	[7] 14,961,000	[7] 14,961,000	[7] 14,961,000
OCEANIA.						
Australia	2,449	2,745	(1)	2,574,432	1,903,138	(1)
Fiji	114	(1)	(1)	29,120	(1)	(1)

[1] No official statistics.

[2] Census of 1910.

[3] Production in 1906.

[4] Exports.

[5] Unofficial estimate.

[6] Includes Feudatory States.

[7] Census of 1911.

TOBACCO—Continued.

TABLE 94.—*Tobacco: Total production of countries for which estimates were available, 1900–1911.*[1]

Year.	Production.	Year.	Production.	Year.	Production.	Year	Production.
	Pounds.		*Pounds.*		*Pounds.*		*Pounds.*
1900	2,201,193,000	1904	2,146,641,000	1908	2,382,601,000	1912	....
1901	2,270,213,000	1905	2,279,728,000	1909	2,742,500,000	1913	....
1902	2,376,054,000	1906	2,270,298,000	1910	2,833,729,000	1914	....
1903	2,401,268,000	1907	2,391,661,000	1911	2,566,202,000		

[1] Data for 1911 not strictly comparable with earlier years.

TABLE 95.—*Tobacco: Acreage, production, value, etc., in the United States 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage (000 omitted).	Average yield per acre.	Production (000 omitted).	Average farm price per pound Dec. 1.	Farm value Dec. 1 (000 omitted).	Domestic exports of unmanufactured, fiscal year beginning July 1.	Imports of unmanufactured, fiscal year beginning July 1.	Condition of growing crop.			
								July 1.	Aug. 1.	Sept. 1.	When harvested.
	Acres.	*Lbs.*	*Lbs.*	*Cts.*	*Dolls.*	*Pounds.*	*Pounds.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1849	....	....	*199,753*	....	....	....	....	......	......	......	......
1859	....	....	*434,209*	....	....	....	....	......	......	......	......
1869	....	....	*262,735*	....	....	....	....	......	......	......	......
1879	*639*	*739.7*	*472,661*	....	....	....	....	......	......	......	......
1889	*695*	*702.5*	*488,257*	....	....	....	....	......	......	......	......
1899	*1,101*	*788.5*	*868,113*	....	....	....	....	......	......	......	......
1900	1,046	778.0	814,345	6.6	53,661	315,787,782	26,851,253	88.5	82.9	77.5	76.1
1901	1,039	788.0	818,953	7.1	58,283	301,007,365	29,428,837	86.5	72.1	78.2	81.5
1902	1,031	797.3	821,824	7.0	57,564	368,184,084	34,016,956	85.6	81.2	81.5	84.1
1903	1,038	786.3	815,972	6.8	55,515	311,971,831	31,162,636	85.1	82.9	83.4	82.3
1904	806	819.0	660,461	8.1	53,383	334,302,091	33,288,378	85.3	83.9	83.7	85.6
1905	776	815.6	633,034	8.5	53,519	312,227,202	41,125,970	87.4	84.1	85.1	85.8
1906	796	857.2	682,429	10.0	68,233	340,742,864	40,898,807	86.7	87.2	86.2	84.6
1907	821	850.5	698,126	10.2	71,411	330,812,658	35,005,131	81.3	82.8	82.5	84.8
1908	875	820.2	718,061	10.3	74,130	287,900,946	43,123,196	86.6	85.8	84.3	84.1
1909	1,180	804.3	949,357	....	....	....	....	......	......	......	......
1909	*1,295*	*815.3*	*1,055,765*	10.1	106,600	357,196,074	46,853,389	89.8	83.4	80.2	81.3
1910[1]	1,366	807.7	1,103,415	9.3	102,142	355,327,072	48,203,288	85.3	78.5	77.7	80.2
1911	1,013	893.7	905,109	9.4	85,210	379,845,320	54,740,380	72.6	68.0	71.1	80.5
1912	1,226	785.5	962,855	10.8	104,063	418,796,906	67,977,118	87.7	82.8	81.1	81.8
1913	1,216	784.3	953,734	12.8	122,481	449,749,982	61,174,751	82.8	78.3	74.5	76.6
1914	1,224	845.7	1,034,679	9.8	101,411	348,346,091	45,764,728	66.0	66.5	71.4	81.8
1915	1,368	775.1	1,060,587	9.1	96,041	....	....	85.5	79.7	80.7	81.9

[1] Figures adjusted to census basis.

TOBACCO—Continued.

TABLE 96.—*Tobacco: Acreage, production, and total farm value, by States, 1915.*

State.	Acreage.	Production.	Farm value Dec. 1.
	Acres.	*Pounds.*	*Dollars.*
New Hampshire	100	140,000	17,000
Vermont	100	130,000	14,000
Massachusetts	7,300	8,030,000	1,164,000
Connecticut	22,200	29,970,000	5,095,000
New York	4,400	5,280,000	502,000
Pennsylvania	31,400	42,390,000	3,900,000
Maryland	22,000	16,280,000	1,384,000
Virginia	192,500	144,375,000	13,571,000
West Virginia	11,300	9,831,000	983,000
North Carolina	320,000	198,400,000	22,221,000
South Carolina	65,000	37,700,000	2,639,000
Georgia	1,700	1,496,000	344,000
Florida	3,900	3,549,000	816,000
Ohio	93,700	84,330,000	7,590,000
Indiana	13,500	11,340,000	828,000
Illinois	700	595,000	54,000
Wisconsin	41,000	36,900,000	2,214,000
Missouri	3,500	3,150,000	378,000
Kentucky	440,000	356,400,000	27,799,000
Tennessee	92,900	69,675,000	4,390,000
Alabama	200	100,000	22,000
Louisiana	300	126,000	38,000
Texas	200	100,000	27,000
Arkansas	500	300,000	51,000
United States	1,368,400	1,060,587,000	96,041,000

TOBACCO—Continued.

TABLE 97.—*Tobacco: Yield per acre, price per pound Dec. 1, and value per acre, by States.*

State.	Yield per acre (pounds).											Farm price per pound (cents).						Value per acre (dollars).[1]	
	10-year average 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average 1906–1915.	1911	1912	1913	1914	1915	5-year average 1910–1914.	1915
New Hampshire	1,688	1,785	1,650	1,800	1,700	1,720	1,700	1,700	1,650	1,770	1,400	15.6	16.0	18.5	18.0	18.0	12.0	292.02	168.00
Vermont	1,628	1,700	1,625	1,735	1,675	1,600	1,700	1,700	1,550	1,700	1,300	15.3	16.0	18.5	18.0	18.0	11.0	280.70	143.00
Massachusetts	1,600	1,750	1,525	1,650	1,600	1,730	1,650	1,700	1,550	1,750	1,100	17.1	20.0	23.9	21.0	17.7	14.5	326.21	159.50
Connecticut	1,630	1,735	1,510	1,680	1,650	1,730	1,625	1,700	1,550	1,770	1,350	18.1	20.5	24.1	21.0	18.5	17.0	336.24	229.50
New York	1,215	1,250	1,150	1,175	1,175	1,250	1,330	1,300	1,020	1,300	1,200	10.2	10.4	12.6	12.2	12.0	9.5	137.76	114.00
Pennsylvania	1,332	1,375	1,260	1,325	985	1,500	1,420	1,450	1,200	1,450	1,350	9.3	9.5	8.5	7.5	8.5	9.2	122.18	124.20
Maryland	704	600	660	700	710	690	735	660	740	800	740	7.8	7.5	8.0	9.3	8.0	8.5	58.77	62.90
Virginia	738	675	760	815	775	780	800	600	770	650	750	9.9	9.6	12.0	13.9	9.0	9.4	76.91	70.50
West Virginia	764	780	720	750	875	640	750	760	680	820	870	10.9	8.0	11.0	12.0	11.0	10.0	76.26	87.00
North Carolina	634	580	625	670	600	600	710	620	670	650	620	12.0	11.6	16.0	18.5	11.5	11.2	88.77	69.44
South Carolina	744	670	900	865	800	630	810	700	760	730	580	10.1	12.6	10.9	13.8	9.7	7.0	81.65	40.60
Georgia	850	675	860	975	700	680	900	830	1,000	1,000	880	29.6	28.0	30.0	31.0	25.0	23.0	239.40	202.40
Florida	887	875	925	990	710	680	940	840	1,000	1,000	910	31.4	28.0	30.0	31.0	30.0	23.0	256.32	209.30
Ohio	876	1,060	900	670	925	810	925	920	750	900	900	9.5	7.6	9.1	11.4	8.8	9.0	77.51	81.00
Indiana	858	915	940	700	950	880	910	800	750	900	840	9.3	7.8	9.0	11.0	9.0	7.3	78.02	61.32
Illinois	776	820	800	755	750	790	750	760	700	780	850	9.5	7.8	9.0	11.5	12.0	9.0	75.21	76.50
Wisconsin	1,154	1,275	1,100	1,130	1,180	1,050	1,250	1,290	1,180	1,180	900	9.7	10.0	11.0	12.0	11.0	6.0	123.23	54.00
Missouri	892	730	825	875	885	1,050	800	1,000	650	1,200	900	11.9	12.0	12.0	12.7	13.0	12.0	116.11	108.00
Kentucky	836	870	890	815	835	810	880	780	760	910	810	8.9	7.7	8.7	10.0	8.4	7.8	71.71	63.18
Tennessee	764	785	800	800	730	760	810	660	720	820	750	8.0	8.5	7.1	8.4	7.5	6.3	60.31	47.25
Alabama	586	510	450	450	600	500	700	750	700	700	500	25.6	25.0	35.0	25.0	28.0	22.0	181.70	110.00
Louisiana	480	475	350	850	550	550	450	300	450	400	420	30.0	31.0	30.0	25.0	35.0	30.0	123.90	126.00
Texas	633	550	700	800	650	600	650	700	600	580	500	23.8	20.0	17.5	22.0	21.0	27.0	131.26	135.00
Arkansas	624	695	570	610	600	650	600	650	650	610	600	15.3	12.0	18.0	16.4	18.0	17.0	101.88	102.00
United States	822.4	857.2	850.5	820.2	804.3	807.7	893.7	785.5	784.3	845.7	775.1	10.2	9.4	10.8	12.8	9.8	9.1	85.48	70.18

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[1] Based upon farm price Dec. 1.

TOBACCO—Continued.

TABLE 98.—*Tobacco: Acreage, production, and farm value, by types and districts, 1914 and 1915.*

Type and district.	Acreage (thousands of acres).		Yield per acre (pounds).		Production (thousands of pounds).		Average farm price per pound Dec. 1 (cents).		Total farm value (thousands of dollars).[1]	
	1915	1914	1915	1914	1915	1914	1915	1914	1915	1914
I. CIGAR TYPES.										
New England	29.7	27.0	1,285	1,765	38,270	47,651	16.4	18.3	6,290	8,721
New York	4.4	4.6	1,200	1,300	5,280	5,980	9.5	12.0	502	718
Pennsylvania	31.4	33.1	1,350	1,450	42,390	47,995	9.2	7.5	3,900	3,600
Ohio—Miami Valley	60.3	56.4	900	960	54,270	54,144	9.0	9.1	4,884	4,927
Wisconsin	41.0	45.6	900	1,180	26,900	53,808	6.0	7.5	2,214	4,036
Georgia and Florida	5.6	6.2	900	1,000	5,045	6,200	23.0	28.5	1,160	1,765
II. CHEWING, SMOKING, SNUFF, AND EXPORT TYPES.										
Burley district	244.2	244.2	890	920	217,338	224,664	9.5	8.1	20,647	18,198
Dark districts of Kentucky and Tennessee:										
Paducah district	93.1	70.0	730	780	67,963	54,600	6.0	6.1	4,078	3,331
Henderson or stemming district	93.0	71.5	760	950	70,680	67,925	6.0	6.3	4,240	4,279
One-Sucker district	38.4	38.4	780	960	29,952	36,864	5.5	5.6	1,647	2,064
Clarksville and Hopkinsville district	118.7	98.9	750	800	89,025	79,120	6.5	7.5	5,787	5,934
Virginia sun-cured district	12.0	12.0	850	760	10,200	9,120	8.0	6.5	816	593
Virginia dark district	65.0	50.0	840	740	54,600	37,000	8.0	7.3	4,368	2,701
Bright yellow district:										
Old belt—Virginia and North Carolina	255.0	240.0	640	600	163,200	144,000	10.5	11.0	17,136	15,840
New belt—Eastern North Carolina and South Carolina	240.0	185.0	620	710	148,800	131,350	10.6	11.6	15,773	15,237
Maryland and eastern Ohio export	23.9	24.9	760	820	18,164	20,418	8.5	8.0	1,544	1,633
Perique-Louisiana	.3	.7	420	400	126	280	30.0	35.0	38	98
Scattering	12.7	15.0	......	......	8,384	13,560	......	......	1,017	1,212

[1] Based upon farm price Dec. 1.

TABLE 99.—*Tobacco: Wholesale price per pound, 1900–1915.*

Date.	Cincinnati, leaf, plug, stock, common to good red.[1]		Hopkinsville, leaf, common to fine.		Louisville, leaf (Burley, dark red), common to good.		Clarksville, leaf, common to fine.		Richmond, leaf, smokers, common to good.[2]		Baltimore, leaf, (Maryland), medium to fine red.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
1900	5.00	20.00	5.00	14.00	5.50	14.00	5.50	13.50	......	......	5.00	10.00
1901	4.50	12.00	5.00	15.00	5.50	12.50	6.00	14.00	......	......	6.00	11.00
1902	5.00	11.00	4.25	14.00	4.50	12.00	6.00	12.50	......	......	6.00	12.00
1903	4.00	12.00	5.00	13.50	5.00	13.75	5.50	13.00	......	......	6.50	12.00
1904	4.00	12.50	3.50	12.50	6.00	24.50	4.75	12.00	6.00	12.50	6.00	12.00
1905	4.00	14.00	5.00	14.00	5.50	14.50	5.75	13.00	8.00	13.00	6.00	12.00
1906	4.50	13.00	5.75	15.00	6.25	17.00	6.50	12.50	9.00	13.00	6.00	12.00
1907	6.50	17.50	6.50	16.00	6.50	14.50	7.50	17.00	9.00	13.00	6.50	12.00
1908	8.00	20.00	7.50	20.00	9.00	19.00	9.00	18.00	5.00	13.25	6.50	13.00
1909	12.00	20.00	6.00	14.00	12.00	18.50	7.50	14.00	5.00	10.00	8.50	13.00
1910	7.00	16.75	6.00	17.50	8.00	17.00	8.00	16.50	5.00	10.00	8.50	13.00
1911	5.50	14.50	7.00	18.00	6.00	12.75	9.50	15.50	5.00	12.00	8.50	13.00
1912	5.00	14.00	8.00	16.00	7.00	13.00	9.50	15.00	6.00	12.00	8.50	15.00
1913	5.50	13.75	[3] 7.00	[3] 14.00	7.00	16.00	8.50	15.00	6.00	16.00	8.50	15.00
1914	5.50	14.00	[3] 7.50	14.00	9.00	16.00	7.50	16.00	7.00	20.00	8.00	15.00

[1] Common to fine red, 1900 and 1901.

[2] Brights, smokers, common to fine.

[3] Common to good, February to November, inclusive.

TOBACCO—Continued.

TABLE 99.—*Tobacco: Wholesale price per pound, 1900–1915*—Continued.

Date.	Cincinnati, leaf, plug, stock, common to good red.		Hopkinsville, leaf, common to fine.		Louisville, leaf (Burley, dark red), common to good.		Clarksville, leaf, common to fine.		Richmond, leaf, smokers, common to good.		Baltimore, leaf, (Maryland), medium to fine red.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1915.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January	6.00	13.00	[1] 4.00	12.50	9.00	14.00	6.00	13.00	7.00	20.00	8.00	13.00
February	6.00	13.00	5.00	12.50	9.00	14.00	6.00	13.00	7.00	20.00	8.00	13.00
March	6.00	13.00	5.00	12.00	9.00	14.00	6.00	13.00	7.00	20.00	8.00	13.00
April	6.00	13.00	5.50	12.25	8.00	14.00	6.00	12.00	7.00	20.00	8.00	13.00
May	6.00	13.00	5.50	11.50	8.00	14.00	6.00	12.00	7.00	20.00	8.00	13.00
June	6.00	13.00	5.50	10.50	8.00	14.00	6.00	12.00	7.00	20.00	8.00	13.00
July	6.00	13.00	....	....	10.00	15.00	6.00	12.00	7.00	20.00	8.00	14.00
August	6.00	13.00	....	....	10.00	15.00	6.00	12.00	7.00	20.00	8.00	14.00
September	5.00	13.00	....	....	10.00	15.00	....	....	7.00	20.00	8.00	14.00
October	5.00	13.00	....	....	10.00	15.00	....	....	7.00	20.00	8.00	14.00
November	5.00	13.00	[1] 6.00	6.00	10.00	15.00	[2] 7.00	13.00	7.00	20.00	9.00	14.00
December	5.00	13.00	[2] 5.50	10.00	10.00	15.00	[2] 7.50	13.00	7.00	20.00	9.00	14.00
Year	5.00	13.00	4.00	12.50	8.00	15.00	7.50	13.00	7.00	20.00	8.00	14.00

[1] No grade specified.

[2] Common to good, February to November, inclusive.

TABLE 100.—*Tobacco (unmanufactured): International trade, calendar years 1912–1914.*

[Tobacco comprises leaf, stems, strippings, and *tombac*, but not snuff. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.)
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Aden [1]	8,825	10,475	....	Netherlands	3,686	3,454	....
Algeria	14,445	[2] 14,445	....	Paraguay	8,481	11,929	....
Austria-Hungary	26,281	19,247	....	Persia [3]	3,776	[2] 3,776	....
Brazil	54,466	64,788	59,481	Philippine Islands	30,945	28,585	28,848
British India	32,256	35,843	23,349	Russia	23,674	28,291	9,678
Bulgaria	3,578	[2] 3,578	....	Santo Domingo	12,687	21,584	....
Ceylon	4,482	[2] 4,482	....	Turkey [4]	54,582	54,582	....
Cuba	42,983	30,669	36,868	United States	410,852	444,372	347,295
Dutch East Indies	189,551	193,632	....	Other countries	58,366	57,910	....
Greece	24,238	21,876	....				
Mexico	1,271	[2] 1,271	....	Total	1,009,425	1,054,789	....

IMPORTS.

Aden [1]	12,734	11,401	....	Italy	47,917	56,160	41,425
Argentina	18,787	17,917	2,221	Netherlands	55,523	65,913	....
Australia	15,036	15,805	....	Norway	4,355	4,044	4,639
Austria-Hungary	49,183	48,174	....	Portugal	6,382	7,013	....
Belgium	25,989	21,597	....	Southern Nigeria	6,602	[2] 6,602	....
British India	6,346	7,048	5,914	Spain	60,583	60,279	35,677
Canada	20,355	21,958	16,934	Sweden	9,913	10,319	....
China	19,057	21,545	15,781	Switzerland	19,429	18,470	....
Denmark	10,211	10,407	....	United Kingdom	137,970	158,668	154,437
Egypt	19,549	19,613	17,077	United States	57,473	66,899	57,407
Finland	10,294	9,450	....	Other countries	57,056	53,529	....
France	70,869	81,781	....				
Germany	178,443	182,775	....	Total	920,056	977,367	....

[1] Year beginning Apr. 1.

[2] Year preceding.

[3] Year beginning Mar. 21.

[4] Year beginning Mar. 14. Data for 1910.

FLAX.

TABLE 101.—*Flax: Area and production of undermentioned countries, 1912–1914.*

[000 omitted.]

Country.	Area.			Production.					
				Seed.			Fiber.		
	1912	1913	1914	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*	*Pounds.*	*Pounds.*	*Pounds.*
United States	2,851	2,291	1,645	28,073	17,853	13,749	....	....	....
Canada:									
Quebec	1	1	1	9	9	8	....	....	....
Ontario	9	7	5	143	164	84	....	....	....
Manitoba	100	54	40	1,252	632	338	....	....	....
Saskatchewan	1,780	1,386	958	23,033	15,579	6,131	....	....	....
Alberta	132	105	80	1,693	1,155	614	....	....	....
Total Canada	2,022	1,553	1,084	26,130	17,539	7,175	....	....	....
Mexico	(1)	(1)	(1)	150	150	150	....	....	....
Total	....	....	....	54,353	35,542	21,074	....	....	....
SOUTH AMERICA.									
Argentina	4,028	4,283	4,397	22,534	43,305	39,171	....	....	....
Uruguay	143	141	128	879	1,302	963	....	....	....
Total	4,171	4,424	4,525	23,413	44,607	40,134	....	....	....
EUROPE.									
Austria-Hungary:									
Austria	91	90	(1)	650	608	(1)	51,532	48,976	(1)
Hungary proper	25	(1)	(1)	200	174	(1)	20,197	15,000	(1)
Croatia-Slavonia	16	(1)	(1)	20	15	(1)	8,000	7,000	(1)
Bosnia-Herzegovina	(1)	(1)	(1)	4	4	(1)	1,000	1,000	(1)
Total Austria-Hungary	....	....	....	874	801	....	80,729	71,976	(1)
Belgium	54	57	32	514	387	(1)	64,000	39,437	(1)
Bulgaria	1	1	2	6	8	(1)	308	(1)	(1)
France	69	75	46	576	740	336	46,074	48,437	23,370
Italy	22	22	22	343	405	323	5,511	5,732	5,070
Netherlands	36	36	19	428	326	212	21,217	16,606	10,811
Roumania	79	67	21	772	569	165	8,953	4,759	2,137
Russia:									
Russia proper	3,237	3,443	3,307	20,574	22,898	(1)	....	....	....
Poland	80	88	80	793	878	(1)	....	....	....
Northern Caucasia	137	144	182	810	680	(1)	....	....	....
Total Russia, European	3,454	3,675	3,569	22,177	24,456	....	[2] 1,172,059	[2] 1,703,209	[2] 1,152,349
Serbia	4	(1)	(1)	(1)	(1)	(1)	2,095	(1)	(1)
Sweden	(1)	3	(1)	(1)	3	(1)	(1)	418	(1)
Ireland	55	59	49	(1)	(1)	(1)	29,021	28,341	18,202
Total	....	....	....	25,690	27,692	....	1,429,967	[3] 1,918,915	....

[1] No official statistics.

[2] Includes 27 governments only.

[3] Not including Bulgaria and Serbia.

FLAX—Continued.

TABLE 101.—*Flax: Area and production of undermentioned countries, 1912–1914*—Con.

Country.	Area.			Production.					
				Seed.			Fiber.		
	1912	1913	1914	1912	1913	1914	1912	1913	1914
ASIA.									
India:	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*	*Pounds.*	*Pounds.*	*Pounds.*
British........	5,038	4,125	3,031	25,592	21,544	15,440	....	....	....
Native States..	436	433	(1)	(1)	(1)	(1)	....	....	....
Total........	5,474	4,558	3,031	25,592	21,544	15,440	....	....	....
Russia:									
Central Asia (4 governments)	89	117	190	358	575	(1)	....	....	....
Siberia (4 governments)...	137	176	110	779	1,094	(1)	....	....	....
Transcaucasia (1 government).......	16	30	(1)	93	258	(1)	....	....	....
Total Russia, Asiatic.....	242	323	300	1,230	1,927	....	....	....	....
Total........	5,716	4,881	3,331	26,822	23,471	....	....	....	....
AFRICA.									
Algeria............	1	(1)	(1)	13	15	(1)	(1)	(1)	(1)
Grand total..	....	....	....	130,291	131,327	....	1,429,967	1,918,915	....

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(1) No official statistics.

TABLE 102.—*Flax (seed and fiber): Total production of countries named in Table 101 1896–1914.*

Year.	Production.		Year.	Production.	
	Seed.	Fiber.		Seed.	Fiber.
	Bushels.	*Pounds.*		*Bushels.*	*Pounds.*
1896................	82,684,000	1,714,205,000	1906................	88,165,000	1,871,723,000
1897................	57,596,000	1,498,054,000	1907................	102,960,000	2,042,390,000
1898................	72,938,000	1,780,693,000	1908................	100,850,000	1,907,591,000
1899................	66,348,000	1,138,763,000	1909................	109,820,000	1,384,524,000
1900................	62,432,000	1,315,931,000	1910................	85,253,000	913,112,000
1901................	72,314,000	1,050,260,000	1911................	101,339,000	1,011,350,000
1902................	83,891,000	1,564,840,000	1912................	130,291,000	1,429,967,000
1903................	110,455,000	1,492,383,000	1913................	131,327,000	1,918,915,000
1904................	107,743,000	1,517,922,000	1914................	....	....
1905................	100,458,000	1,494,229,000			

FLAX—Continued.

TABLE 103.—*Flaxseed: Acreage, production, value, etc., in the United States, 1849–1915.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of acres are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available.

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.	Condition of growing crop.			
						July 1.	Aug. 1.	Sept. 1.	When harvested.
	Acres.	*Bushels.*	*Bushels.*	*Cents.*	*Dollars.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
1849			*562,000*						
1859			*567,000*						
1869			*1,730,000*						
1879			*7,170,000*						
1889	*1,319,000*	*7.8*	*10,250,000*						
1899	*2,111,000*	*9.5*	*19,979,000*						
1902	3,740,000	7.8	29,285,000	105.0	30,815,000				
1903	3,233,000	8.4	27,301,000	81.7	22,292,000	86.2	80.3	80.5	74.0
1904	2,264,000	10.3	23,401,000	99.3	23,229,000	86.6	78.9	85.8	87.0
1905	2,535,000	11.2	28,478,000	84.4	24,049,000	92.7	96.7	94.2	91.5
1906	2,506,000	10.2	25,576,000	101.3	25,899,000	93.2	92.2	89.0	87.4
1907	2,864,000	9.0	25,851,000	95.6	24,713,000	91.2	91.9	85.4	78.0
1908	2,679,000	9.6	25,805,000	118.4	30,577,000	92.5	86.1	82.5	81.2
1909	2,742,000	9.4	25,856,000						
1909	*2,083,000*	*9.4*	*19,513,000*	152.9	29,795,000	95.1	92.7	88.9	84.9
1910[1]	2,467,000	5.2	12,718,000	231.7	29,472,000	65.0	51.7	48.3	47.2
1911	2,757,000	7.0	19,370,000	182.1	35,272,000	80.9	71.0	68.4	69.6
1912	2,851,000	9.8	28,073,000	114.7	32,202,000	88.9	87.5	86.3	83.8
1913	2,291,000	7.8	17,853,000	119.9	21,399,000	82.0	77.4	74.9	74.7
1914	1,645,000	8.4	13,749,000	126.0	17,318,000	90.5	82.1	72.9	77.4
1915	1,367,000	10.1	13,845,000	173.9	24,080,000	88.5	91.2	87.6	84.5

[1] Figures adjusted to census basis.

TABLE 104.—*Flaxseed: Acreage, production, and total farm value, by States, 1915.*

State.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.
	Acres.	*Bushels.*	*Bushels.*	*Cents.*	*Dollars.*
Wisconsin	7,000	13.5	94,000	180	169,000
Minnesota	300,000	10.5	3,150,000	176	5,544,000
Iowa	18,000	9.0	162,000	150	243,000
Missouri	6,000	8.0	48,000	135	65,000
North Dakota	660,000	9.9	6,534,000	178	11,631,000
South Dakota	150,000	11.0	1,650,000	167	2,756,000
Nebraska	7,000	11.0	77,000	147	113,000
Kansas	36,000	5.7	205,000	145	297,000
Montana	180,000	10.5	1,890,000	170	3,213,000
Wyoming	2,000	13.0	26,000	145	38,000
Colorado	1,000	9.4	9,000	120	11,000
United States	1,367,000	10.1	13,845,000	173.9	24,080,000

FLAX—Continued.

TABLE 105.—*Flaxseed: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
Wis.	13.4	14.0	14.2	16.0	14.5	10.0	12.0	12.5	14.0	13.5	13.5	141	185	127	123	125	180	18.84	24.30
Minn.	9.7	11.0	10.5	10.6	10.0	7.5	8.0	10.2	9.0	9.3	10.5	143	182	120	123	128	176	13.40	18.48
Iowa.	10.3	11.4	11.5	10.9	9.8	12.2	8.0	11.5	9.4	9.5	9.0	135	185	124	123	120	150	15.77	13.50
Mo.	7.1	7.3	10.0	7.0	8.1	8.4	3.0	6.0	5.0	8.0	8.0	126	190	110	115	104	135	8.80	10.80
N. Dak.	8.2	9.9	8.0	9.0	9.3	3.6	7.6	9.7	7.2	8.3	9.9	143	184	114	121	128	178	10.57	17.62
S. Dak.	8.5	10.5	10.0	10.7	9.4	5.0	5.3	8.6	7.2	7.5	11.0	139	178	113	120	123	167	9.69	18.37
Nebr.	8.6	8.5	11.0	11.0	8.5	8.0	5.0	9.5	6.0	7.0	11.0	134	185	128	110	119	147	10.87	16.17
Kans.	6.7	8.2	10.0	6.5	7.0	8.2	3.0	6.0	6.0	6.0	5.7	131	190	130	116	125	145	9.04	8.26
Mont.	10.3	12.0	13.0	11.5	12.0	7.0	7.7	12.0	9.0	8.0	10.5	138	180	112	115	120	170	12.81	17.85
Wyo.	10.4	....	....	....	....	10.0	....	12.0	9.9	7.0	13.0	.....	.....	.....	.....	.....	145	.....	18.85
Colo.	7.4	....	....	....	....	7.0	7.0	8.0	5.0	8.0	9.4	144	180	125	115	100	120	10.42	11.28
U. S.	8.6	10.2	9.0	9.6	9.4	5.2	7.0	9.8	7.8	8.4	10.1	141.6	182.1	114.7	119.9	126.0	173.9	11.18	17.62

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[1] Based upon farm price Dec. 1.

TABLE 106.—*Flaxseed: Farm price per bushel, on first of each month, by geographical divisions, 1914 and 1915.*

Month.	United States.		North Central States east of Mississippi River.		North Central States west of Mississippi River.		Far Western States.	
	1915	1914	1915	1914	1915	1914	1915	1914
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January	134.8	124.2	135.0	141.0	136.8	125.5	125.0	119.0
February	163.7	127.8	140.0	....	161.6	128.5	175.0	125.0
March	157.9	132.5	130.0	149.0	160.0	133.7	148.0	127.0
April	167.7	132.8	....	140.0	167.3	135.2	170.0	123.0
May	169.6	134.7	150.0	129.0	169.7	133.3	170.0	140.0
June	169.5	136.8	130.0	148.0	168.7	136.2	175.0	139.0
July	152.5	136.0	155.0	141.0	153.8	139.5	146.0	122.0
August	144.6	150.7	....	148.0	145.1	150.9	142.0	150.0
September	143.5	139.3	100.0	135.0	145.6	144.2	135.0	120.0
October	148.1	127.4	125.0	141.0	148.3	129.2	148.0	120.0
November	162.9	118.7	....	121.0	163.9	118.7	158.0	....
December	173.9	126.0	180.0	125.0	174.6	127.3	169.5	119.9

FLAX—Continued.

TABLE 107.—*Flaxseed: Wholesale price per bushel, 1900–1915.*

Date.	Cincinnati.		Minneapolis.		Milwaukee.		Duluth.	
					No. 1 Northwestern.			
	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$1.00	$1.45	$1.32	$1.86	$1.30	$1.86	$1.28½	$1.87
1901	1.20	1.50	1.38	1.90	1.30	1.88	1.33	1.88
1902	1.25	1.40	1.13	1.80	1.18	1.80	1.15¼	1.78
1903	1.00	1.30	.89	1.24	.94	1.24	.92	1.20
1904	1.00	1.00	.97	1.28	1.06	1.28	1.01½	1.28
1905	1.10	1.10	.92	1.47	.98	1.47	.96¼	1.50
1906	1.10	1.12	1.03	1.25	1.05	1.25	1.09¼	1.25
1907	1.12	1.12	.96	1.36½	1.07	1.34	1.06½	1.41½
1908	1.12	1.25	1.06½	1.51½	1.12	1.47	1.12¾	1.49⅜
1909	1.25	1.25	1.29	1.99	1.35	2.09	1.36½	2.04½
1910	1.75	2.75	1.75	2.84	1.91½	2.75	1.89	2.84
1911	2.50	2.75	1.93	2.74½	1.92	2.70	1.93	2.70
1912	1.50	2.80	1.28	2.20	1.24½	2.39	1.22	2.53
1913	1.50	1.50	....	....	1.25½	1.54½	1.22⅝	1.53⅛
1914	1.40	1.50	1.28	1.88	1.30	1.93	1.28¾	1.93
1915.								
January	....	....	1.59½	1.94¼	1.51½	1.98	1.61½	1.93
February	....	....	1.80⅞	1.92½	1.81	1.87¾	1.83⅞	1.91½
March	1.80	1.80	1.80	2.08½	1.81	2.05	1.84¼	2.09
April	1.75	1.80	1.85	1.97¼	1.85	1.95	1.86½	1.98¼
May	1.70	1.75	1.87	2.00¼	1.87	1.98¼	1.91	2.02¼
June	1.70	1.70	1.68½	1.86	1.68½	1.84	1.70½	1.85½
July	1.70	1.70	1.52½	1.75¼	1.52½	1.73¼	1.53	1.76¼
August	....	....	1.60	1.74½	1.60	1.72½	1.58½	1.69
September	....	....	1.61½	1.87½	1.61½	1.84½	1.62	1.82½
October	....	....	1.77	1.91½	1.77	1.87½	1.76	1.90¼
November	....	....	1.82½	2.09½	1.82½	2.07½	1.87½	2.12¼
December	....	....	1.98⅛	2.21	1.97	2.18	2.00¼	2.20½
Year	1.70	1.80	1.52½	2.21	1.51½	2.18	1.53	2.20½

RICE.

TABLE 108.—*Rice: Area and production of undermentioned countries, 1912–1914.*

[Expressed in terms of cleaned rice.]

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Pounds.*	*Pounds.*	*Pounds.*
United States:	723,000	827,000	694,000	695,944,000	715,111,000	656,917,000
Hawaii[1]	9,000	(2)	(2)	25,820,000	(2)	(2)
Porto Rico[1]	16,000	(2)	(2)	4,298,000	(2)	(2)
Central America:						
Guatemala	(2)	(2)	(2)	3,650,000	3,501,000	(2)
Salvador	(2)	(2)	27,000	(2)	(2)	12,344,000
Costa Rica	[3] 7,000	(2)	7,000	(2)	(2)	(2)
Mexico	(2)	(2)	41,000	(2)	(2)	33,921,000
SOUTH AMERICA.						
Argentina	[4] 20,000	(2)	(2)	(2)	(2)	(2)
Brazil: Sao Paulo	224,000	(2)	(2)	137,323,000	109,625,000	116,416,000
British Guiana	38,000	44,000	36,000	(2)	(2)	(2)
Dutch Guiana	(2)	(2)	(2)	5,683,000	5,463,000	(2)
Peru	138,000	138,000	(2)	114,313,000	108,869,000	(2)

[1] Census of 1909. [2] No official statistics. [3] Census of 1910. [4] Census of 1908.

RICE—Continued.

TABLE 108.—*Rice: Area and production of undermentioned countries, 1912–1914*—Contd.

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
EUROPE.	*Acres.*	*Acres.*	*Acres.*	*Pounds.*	*Pounds.*	*Pounds.*
Bulgaria	7,000	7,000	(1)	4,848,000	5,656,000	(1)
France	1,000	(1)	(1)	1,257,000	(1)	(1)
Italy	360,000	362,000	361,000	598,100,000	739,221,000	741,263,000
Russia (North Caucasus)	3,000	1,000	(1)	1,534,000	564,000	(1)
Spain	95,000	96,000	97,000	332,358,000	303,310,000	336,925,000
ASIA.						
India:						
British [2]	71,623,000	75,425,000	76,181,000	63,805,168,000	64,490,272,000	62,638,912,000
Native States	2,478,000	(1)	(1)	(1)	(1)	(1)
Ceylon	801,000	672,000	865,000	457,483,000	356,191,000	[3] 290,819,000
Federated Malay States	126,000	124,000	(1)	73,476,000	87,321,000	(1)
Japanese Empire:						
Japan	7,360,000	7,425,000	7,434,000	15,777,677,000	15,787,969,000	17,827,240,000
Chosen (Korea)	2,404,000	(1)	(1)	2,817,855,000	3,050,798,000	3,678,878,000
Formosa	1,189,000	1,221,000	(1)	1,271,265,000	1,610,461,000	(1)
Java and Madura [4]	5,860,000	6,309,000	(1)	7,187,270,000	7,951,049,000	(1)
Philippine Islands	2,666,000	2,820,000	3,076,000	717,441,000	1,512,299,000	1,403,516,000
Russia, Asiatic:						
Transcaucasia and Turkestan	491,000	666,000	(1)	276,938,000	512,383,000	(1)
Straits Settlements	92,000	(1)	(1)	(1)	(1)	(1)
AFRICA.						
Egypt	235,000	252,000	37,000	438,257,000	505,118,000	81,229,000
Nyasaland	(1)	(1)	(1)	[5] 1,846,000	[5] 3,385,000	(1)
OCEANIA.						
Australia	(1)	(6)	(1)	(1)	75,000	(1)
Fiji	11,000	14,000	(1)	(1)	(1)	(1)

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[1] No official statistics.
[2] Excludes feudatory States.
[3] Excluding production for Matara in southern province, which in 1913 amounted to 55,483,000 pounds.
[4] Excludes Soerakarta, Djokjakarta, and private lands.
[5] Crops grown by natives only.
[6] Less than 500 acres.

TABLE 109.—*Rice (cleaned): Total production in principal countries for which estimates are available, 1900–1913.*

[The figures below include the principal countries for which estimates are available. The totals shown are merely approximate. China and French Indo-China are not included below. Three Provinces of China in 1910 produced 47,204,000,000 pounds of rice. The totals below may represent at least two-thirds of the total world production of rice.]

Year.	Production.	Year.	Production.	Year.	Production.
	Pounds.		*Pounds.*		*Pounds.*
1900	100,400,000,000	1905	102,400,000,000	1910	126,100,000,000
1901	94,400,000,000	1906	105,800,000,000	1911	102,100,000,000
1902	101,600,000,000	1907	100,300,000,000	1912	97,300,000,000
1903	101,800,000,000	1908	102,900,000,000	1913	100,700,000,000
1904	110,700,000,000	1909	127,700,000,000		

RICE—Continued.

TABLE 110.—*Rice: Acreage, production, value, etc., in the United States, 1904–1915.*

Year.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.	Condition of growing crop.			
						July 1.	Aug. 1.	Sept. 1.	When harvested.
	Acres.	*Bushels.*	*Bushels.*	*Cents.*	*Dollars.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
1904	662,000	31.9	21,096,000	65.8	13,892,000	88.2	90.2	89.7	87.3
1905	482,000	28.2	13,607,000	95.2	12,956,000	88.0	92.9	92.2	89.3
1906	575,000	31.1	17,855,000	90.3	16,121,000	82.9	83.1	86.8	87.2
1907	627,000	29.9	18,738,000	85.8	16,081,000	88.7	88.6	87.0	88.7
1908	655,000	33.4	21,890,000	81.2	17,771,000	92.9	94.1	93.5	87.7
1909	720,000	33.8	24,368,000	79.4	19,341,000	......	......	......	......
1909	*610,000*	*35.8*	*21,839,000*	79.6	17,383,000	90.7	84.5	84.7	81.2
1910	723,000	33.9	24,510,000	67.8	16,624,000	86.3	87.6	88.8	88.1
1911	696,000	32,9	22,934,000	79.7	18,274,000	87.7	88.3	87.2	85.4
1912	723,000	34.7	25,054,000	93.5	23,423,000	86.3	86.3	88.8	89.2
1913	827,000	31.1	25,744,000	85.8	22,090,000	88.4	88.7	88.0	80.3
1914	694,000	34.1	23,649,000	92.4	21,849,000	86.5	87.6	88.9	88.0
1915	803,000	36.1	28,947,000	90.6	26,212,000	90.5	90.0	82.3	80.9

TABLE 111.—*Rice: Acreage, production, and farm value, by States, 1915.*

State.	Acreage.	Average yield per acre.	Production.	Average farm price per bushel Dec. 1.	Farm value Dec. 1.
	Acres.	*Bushels.*	*Bushels.*	*Cents.*	*Dollars.*
North Carolina	200	21.0	4,000	85	3,000
South Carolina	3,700	24.3	90,000	90	81,000
Georgia	900	29.3	20,000	88	23,000
Florida	500	25.0	12,000	75	9,000
Missouri	200	50.0	10,000	100	10,000
Alabama	300	25.0	8,000	75	6,000
Mississippi	1,800	25.0	45,000	88	40,000
Louisiana	401,000	34.2	13,714,000	90	12,343,000
Texas	260,000	30.5	7,930,000	89	7,058,000
Arkansas	100,000	48.4	4,840,000	95	4,598,000
California	34,000	66.7	2,268,000	90	2,041,000
United States	802,600	36.1	28,947,000	90.6	26,212,000

TABLE 112.—*Rice: Yield per acre, price per bushel Dec. 1, and value per acre, by States.*

State.	Yield per acre (bushels).											Farm price per bushel (cents).						Value per acre (dollars).[1]	
	10-year average, 1906–1915.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	10-year average, 1906–1915.	1911	1912	1913	1914	1915	5-year average, 1910–1914.	1915
N. C	25.6	28.9	23.0	25.2	30.2	26.5	25.6	25.0	24.0	26.3	21.0	85	76	90	80	75	85	20.15	17.85
S. C	23.7	22.0	27.0	24.0	25.6	21.0	11.7	25.0	30.0	26.0	24.3	92	75	93	90	92	90	19.74	21.87
Ga	27.4	23.0	34.0	25.0	23.9	22.0	26.8	30.0	32.0	28.0	29.3	90	77	90	83	89	88	23.12	25.78
Fla	26.1	35.0	30.0	25.0	25.0	21.0	25.0	25.0	25.0	25.0	25.0	82	75	90	60	70	75	17.77	18.75
Mo	....	....	....	....	....	....	....	....	....	....	50.0	....	....	....	....	....	100	.....	50.00
Ala	27.8	23.0	25.0	45.0	35.0	25.0	20.0	30.0	22.0	28.0	25.0	79	70	90	60	70	75	18.26	18.75
Miss	28.7	20.0	22.0	31.0	30.0	30.0	36.0	35.0	28.0	30.0	25.0	82	77	90	70	85	88	25.06	22.00
La	31.8	28.0	28.0	33.0	33.8	34.4	31.5	33.5	29.0	32.1	34.2	84	79	93	84	93	90	26.66	30.78
Tex	33.6	36.0	32.0	34.5	34.0	33.0	34.3	35.5	32.0	33.8	30.5	84	80	94	86	92	89	28.37	27.14
Ark	39.0	31.0	37.0	41.0	40.0	40.0	39.0	37.5	36.0	39.8	48.4	87	82	94	90	90	95	32.69	45.98
Cal	48.5	....	....	....	....	33.0	40.0	50.0	48.0	53.3	66.7	87	75	91	100	100	90	39.65	60.03
U. S	36.1	31.1	29.9	33.4	33.8	33.9	32.9	34.7	31.1	34.1	36.1	84.6	79.7	93.5	85.8	92.4	90.6	27.97	32.66

[1] Based upon farm price Dec. 1.

RICE—Continued.

TABLE 113.—*Rice: Wholesale price per pound, 1900–1915.*

Date.	New York.		Cincinnati.		Lake Charles.		New Orleans.		Houston.	
	Domestic (good).		Prime.		Rough.[1]		Honduras, cleaned.		Head rice, cleaned.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Dollars.*	*Dollars.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
1900	4¾	5	5½	6	....	....	3¾	6⅝	....	....
1901	4¾	5	5½	6½	1.70	3.50	1¾	6⅝	3	5
1902	4¾	5¼	5¼	6½	1.75	3.40	1½	6½	3½	5¾
1903	4¼	5¼	4⅜	5½	1.50	3.60	1⅛	6½	4	6¼
1904	3⅜	4¼	3¾	5¼	1.00	3.00	1$\frac{1}{16}$	5¼	3	4¾
1905	3⅜	4½	3	5¼	1.00	3.85	1	5¾	3	5
1906	4⅞	5½	4½	5½	2.00	3.85	1⅛	6	3½	5¾
1907	5	6	4¾	6	1.75	4.10	1½	6½	4⅛	6¼
1908	5	6½	5½	8	1.75	4.33	1¾	7⅛	4¾	6¼
1909	4¾	5⅞	4½	8	1.50	3.75	1⅛	6½	4⅝	6⅛
1910	4	5⅛	4½	5½	1.55	3.25	1⅛	6⅛	3	5¾
1911	3⅝	4¾	4½	5½	1.75	3.50	1⅛	5⅜	2¾	4¾
1912	4¼	5¼	4½	6½	2.00	3.70	2	6	4	5⅝
1913	4¾	5¼	5¼	6¼	2.00	3.82	1.15	7	4	6
1914	4¾	5⅞	5¾	6¼	1.40	4.55	1¼	6⅝	3	5¾
1915.										
January	5	5½	5¾	6¼	2.85	4.10	2¼	5½	4½	4¾
February	5¼	5½	5¾	6½	3.00	4.50	2½	5¾	4½	4¾
March	[2] 5¼	5½	6	6½	3.00	4.61½	2½	5¾	4½	4¾
April	5¼	5½	6	6½	....	....	2½	5½	4½	4⅞
May	5¼	5½	6	6½	....	....	2¾	5⅝	4⅝	4⅞
June	5¼	5½	6	6½	....	....	3	5⅝	4¾	5
July	5¼	5½	6	6½	....	....	3	5⅝	4⅞	5⅛
August	5	5½	5½	6½	3.05	3.47	2¼	5	4¾	5⅜
September	4½	5¼	5	6	2.90	3.63	2	4⅝	4¾	5¼
October	4½	5¼	5	6	2.80	3.35	2	5½	4¾	5⅛
November	5	5¼	5	5¾	3.17	3.65	2	5½	4¾	5⅛
December	5	5¼	5¼	5¾	3.00	3.65	2	5½	4¾	5
Year	4½	5½	5	6½	2.80	4.61½	2	5¾	4½	5⅜

[1] Per barrel of 162 pounds.

[2] Mar. 15 the grade was changed to fancy head. Price of fancy head, Mar. 15 to 31, was 5¼–5½.

RICE—Continued.

TABLE 114.—*Rice: International trade, calendar years 1912–1914.*

[Mostly cleaned rice. Under rice is included paddy, unhulled, rough, cleaned, polished, broken, and cargo rice, in addition to rice flour and meal. Rice bran is not included. Rough rice or paddy, where specifically reported, has been reduced to terms of cleaned rice at ratio of 162 pounds rough, or unhulled, to 100 pounds cleaned. "Rice, other than whole or cleaned rice," in the returns of United Kingdom is not considered paddy, since the chief sources of supply indicate that it is practically all hulled rice. Cargo rice, a mixture of hulled and unhulled, is included without being reduced to terms of cleaned. Broken rice and rice flour and meal are taken without being reduced to terms of whole cleaned rice. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.)	Country.	1912	1913	1914 (prelim.)
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Belgium	105,884	91,066	....	Penang	378,754	378,754	....
British India	6,259,746	5,761,625	4,520,152	Siam	1,296,964	2,531,795	....
Dutch East Indies	119,760	144,609	....	Singapore	683,897	[1] 683,897	....
France	55,866	65,044	59,389	Other countries	875,693	900,209	....
French Indo-China	1,792,772	2,831,962	....				
Germany	379,930	406,414	....	Total	12,429,581	14,339,692	....
Netherlands	480,315	544,317	501,507				

IMPORTS.

Austria-Hungary	154,100	166,011	....	Netherlands	735,323	903,971	774,456
Belgium	198,128	161,240	....	Penang	621,161	[1] 621,161	....
Brazil	22,545	17,146	14,407	Perak	181,638	[1] 181,638	....
British India	261,965	286,154	331,065	Philippine Islands	663,711	191,799	213,673
Ceylon	836,111	[1] 836,111	....	Russia	254,875	269,727	....
China	360,052	721,986	903,235	Selangor	178,004	[1] 178,004	....
Cuba	266,313	283,872	254,150	Singapore	965,390	[1] 965,390	....
Dutch East Indies	1,004,378	1,117,271	....	United Kingdom	763,978	771,512	756,144
Egypt	75,711	119,735	110,933	United States	182,874	229,812	255,064
France	390,904	537,935	591,380	Other countries	1,272,679	1,397,593	....
Germany	924,496	1,052,917	....				
Japan	744,812	1,212,423	....	Total	11,170,294	12,334,554	....
Mauritius	111,146	[1] 111,146	....				

[1] Year preceding.

APPLES.

TABLE 115.—*Apples: Production, and prices Dec. 1, by States, 1909-1915.*

[Production 1909 from census; production and prices, 1910–1915, estimates of Bureau of Crop Estimates.]

State.	Production, barrels of 3 bushels (000 omitted).							Farm price per bushel (cents).					
	1909	1910	1911	1912	1913	1914	1915	1910	1911	1912	1913	1914	1915
Maine	1,212	1,183	2,267	1,800	1,000	2,467	720	80	55	50	100	53	90
New Hampshire	369	600	533	733	267	667	353	80	79	55	113	53	100
Vermont	486	900	750	867	233	1,067	324	92	78	79	123	57	112
Massachusetts	850	967	1,000	1,100	767	1,467	885	90	89	76	134	65	101
Rhode Island	71	100	133	100	100	133	59	89	62	82	116	65	110
Connecticut	514	600	800	567	700	833	511	80	70	75	94	65	96
New York	8,471	5,666	13,000	14,667	6,500	16,533	8,528	100	59	50	95	45	77
New Jersey	469	567	1,033	567	700	1,133	777	78	60	72	85	55	78
Pennsylvania	3,683	3,867	6,833	4,233	3,400	7,700	5,085	75	54	70	89	50	67
Delaware	61	117	100	140	60	167	122	....	85	82	117	58	88
Maryland	608	900	867	883	433	1,167	800	65	52	60	100	41	70
Virginia	2,036	4,033	2,400	5,000	1,733	5,100	4,393	80	74	60	86	46	65
West Virginia	1,408	2,367	2,600	3,433	333	4,133	2,513	78	71	55	130	49	64
North Carolina	1,592	2,400	1,200	2,533	1,000	3,000	1,972	98	88	75	95	49	79
South Carolina	121	247	157	200	87	267	221	100	126	100	145	85	110

APPLES—Continued.

TABLE 115.—*Apples: Production, and prices Dec. 1, by States, 1909–1915*—Continued.

State.	Production, barrels of 3 bushels (000 omitted).							Farm price per bushel (cents).					
	1909	1910	1911	1912	1913	1914	1915	1910	1911	1912	1913	1914	1915
Georgia	299	467	267	467	300	667	625	105	118	101	108	80	97
Ohio	1,555	1,967	6,233	3,533	1,600	4,433	5,984	93	54	67	110	63	55
Indiana	920	1,633	2,967	1,400	2,200	1,433	3,883	90	68	84	88	70	57
Illinois	1,031	267	3,533	1,933	2,733	1,233	4,716	115	68	79	94	84	55
Michigan	4,111	1,400	4,100	5,733	2,967	5,733	3,150	102	70	50	82	49	72
Wisconsin	744	133	1,000	667	1,333	733	1,473	112	93	88	95	90	76
Minnesota	348	50	433	233	600	233	412	162	102	98	105	90	98
Iowa	2,249	67	3,167	500	2,367	533	3,220	130	81	101	112	97	70
Missouri	3,323	2,533	3,866	6,400	2,633	4,167	6,287	85	70	53	93	71	57
South Dakota	64	10	80	67	107	67	100	150	114	104	145	117	115
Nebraska	1,107	467	1,200	933	767	400	1,267	98	83	88	108	96	88
Kansas	452	2,200	800	2,233	900	1,033	2,125	78	100	71	110	95	85
Kentucky	2,456	1,767	2,033	3,200	2,300	3,000	4,170	100	92	85	92	78	71
Tennessee	1,547	1,733	967	2,967	1,300	2,867	2,025	92	104	81	106	75	85
Alabama	296	333	233	400	300	533	532	90	130	100	115	94	94
Mississippi	89	110	80	150	123	167	141	125	122	106	112	95	105
Louisiana	11	....	....	....	....	....	....	....	....	....	....	....	....
Texas	56	133	67	167	100	167	187	130	128	115	130	108	125
Oklahoma	247	400	350	567	367	500	780	107	120	92	122	90	101
Arkansas	765	900	1,000	1,700	1,333	1,667	1,183	105	115	92	102	83	89
Montana	189	140	300	300	280	300	347	120	115	103	142	76	93
Wyoming	6	3	7	10	10	....	....	....	....	....	150	138	130
Colorado	1,186	500	900	1,033	1,100	1,500	693	115	122	80	108	70	95
New Mexico	139	113	227	250	217	300	273	140	119	120	128	98	112
Arizona	24	33	37	43	30	32	40	191	195	204	217	186	195
Utah	117	137	153	227	203	267	142	130	110	89	96	63	108
Nevada	25	53	33	87	53	67	40	145	151	124	132	125	140
Idaho	220	417	400	550	467	567	573	99	112	85	98	78	88
Washington	891	1,933	1,167	2,567	2,300	2,767	2,433	80	118	70	93	64	82
Oregon	644	1,267	500	1,367	1,167	1,200	1,043	100	111	69	85	81	95
California	1,645	1,533	1,567	1,900	1,000	2,000	1,563	82	92	90	117	76	93
United States	48,707	47,213	71,340	78,407	48,470	84,400	76,670	94.8	79.6	68.0	99.0	62.0	74.6

TABLE 116.—*Approximate relative production of principal varieties of apples, expressed as percentages of a normal crop of all apples.*

Variety.	United States.	Maine.	New York.	Pennsylvania.	Virginia.	West Virginia.	Ohio.	Michigan.	Illinois.	Missouri.	Kentucky.	Arkansas.	Washington.	Oregon.	California.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Arkansas (Mammoth Black Twig)	0.7	0.2	.....	0.3	3.1	0.7	0.6	0.0	0.6	1.1	0.9	2.3	0.3	.....	0.3
Arkansas Black	.9	.....	.....	.2	.7	.8	.1	.....	.9	1.5	3.0	3.0	2.3	1.1	1.0
Baldwin	13.4	34.5	31.3	17.8	2.8	5.8	15.1	17.0	2.7	1.5	2.9	.4	7.8	12.6	3.2
Ben Davis	13.3	9.8	5.0	6.0	11.4	15.7	13.9	8.5	37.8	34.2	16.8	44.1	7.4	4.9	3.9
Early Harvest (Prince's Harvest)	2.8	.9	.9	3.1	4.7	3.9	3.7	1.8	2.2	2.8	6.4	2.0	.8	.7	.7
Fall Pippin	1.7	.7	1.7	3.1	1.8	1.5	1.8	1.6	1.1	.4	2.4	.7	.8	.8	.6
Fameuse (Snow)	1.3	3.5	2.4	.6	.1	.0	.6	3.0	1.5	.4	.0	.1	.3	.2	.0
Gano	1.6	.3	.2	.8	.6	1.6	1.3	.3	3.8	6.5	.2	6.6	.8	1.0	.2
Golden Russet	1.4	1.7	2.0	2.5	.3	1.6	.9	3.7	.7	.3	1.0	.1	.3	.6	.1
Gravenstein	1.1	2.3	.9	1.0	.1	.1	.3	.1	.1	.1	.0	.....	4.1	7.3	8.9

APPLES—Continued.

TABLE 116.—*Approximate relative production of principal varieties of apples, expressed as percentages of a normal crop of all apples*—Continued.

Variety.	United States.	Maine.	New York.	Pennsylvania.	Virginia.	West Virginia.	Ohio.	Michigan.	Illinois.	Missouri.	Kentucky.	Arkansas.	Washington.	Oregon.	California.
Grimes (Grimes Golden)	2.2	.2	.1	2.6	2.6	4.6	5.0	1.2	4.9	3.6	2.6	2.1	1.6	.4	.1
Horse (Yellow Horse)	.9	.....	.....	.....	1.0	.0	.0	.0	.2	.5	2.1	1.5	.....	.1	.....
Jonathan	3.6	.8	.4	1.4	1.0	1.7	1.8	2.2	9.3	10.4	2.5	3.7	13.8	4.4	1.7
Limbertwig (Red Limbertwig)	1.6	.0	.0	.....	2.5	.8	.3	.0	.6	1.5	4.0	5.8	.....	.2	.3
McIntosh (McIntosh Red)	.9	3.7	1.6	.7	.1	.1	.1	.3	.4	.1	.1	.....	.3	.1	.1
Maiden Blush	2.0	.3	1.0	3.0	1.5	2.5	4.5	2.6	2.3	2.8	4.5	1.0	.3	.2	.4
Missouri (Missouri Pippin)	.8	.0	.0	.0	.2	.1	.1	.1	1.2	3.0	.5	1.4	.5	.1	.9
Northern Spy	6.1	7.1	13.1	11.4	.8	4.2	7.7	17.9	1.4	1.1	1.4	.5	3.8	7.4	.6
Northwestern Greening	.9	.3	.9	.4	.0	.4	.6	1.9	.3	.3	.4	.....	1.0	.1	.2
Oldenburg (Duchess of Oldenburg)	1.9	2.9	2.2	1.1	.1	.5	1.0	5.0	1.7	.5	.1	.....	1.1	.3	.1
Red Astrachan	1.9	3.9	2.1	3.5	.8	2.1	2.7	2.8	.8	.8	.3	.5	1.7	2.2	3.3
Red June (Carolina Red June)	1.6	.....	.7	.3	1.8	1.3	.2	.0	1.2	1.9	4.3	2.7	1.3	1.3	1.4
Rhode Island Greening (Greening)	4.7	4.1	14.8	5.5	.3	1.4	5.7	5.4	.8	.3	.2	.6	2.2	2.6	2.7
Rome Beauty	3.1	.1	.3	2.1	1.2	18.7	10.8	.2	3.8	1.7	9.6	1.8	12.2	5.6	2.4
Stayman Winesap	1.5	.6	.1	1.8	5.3	1.9	1.3	.1	.5	1.8	1.9	1.7	2.7	1.8	.9
Tolman (Talman Sweet)	1.0	2.6	2.1	1.1	.1	.4	.5	2.4	.3	.2	.3	.....	.9	.....	.0
Tompkins King (King of Tompkins Co.)	1.4	2.4	4.1	1.5	.0	.5	.6	2.1	.1	.1	.0	.....	2.7	5.1	1.1
Wealthy	2.2	5.4	1.8	1.2	.0	1.1	1.2	3.7	1.6	1.3	.4	.1	1.5	1.1	.1
White Pearmain (White Winter Pearmain)	.5	.....	.1	.0	.2	.2	.1	.0	.2	.3	.3	.1	.6	.5	7.5
Winesap	5.1	.5	.1	1.8	20.7	1.8	1.8	.4	5.6	6.8	14.0	8.4	7.1	2.9	1.4
Wolf River	.9	1.4	.3	.3	.2	.6	.5	1.5	.4	.7	.3	.....	.8	1.7	.1
Yellow Bellflower	1.4	1.7	.3	2.3	.2	1.5	1.3	1.2	.5	1.0	.6	.1	1.9	3.4	18.6
Yellow Newtown (Albemarle; Newtown Pippin)	1.6	.0	.2	.6	7.0	.3	.4	.3	.2	.1	.2	.....	2.9	11.3	28.7
Yellow Transparent	1.5	1.1	.3	1.7	1.5	3.2	2.1	1.4	2.1	1.1	3.2	.4	1.5	1.6	.2
York Imperial (Johnson Fine Winter)	2.1	.....	.1	7.5	15.1	5.0	1.3	.3	.8	1.1	.1	.1	.2	.9	.1
Other varieties	10.4	7.0	8.9	12.8	10.2	13.4	10.1	11.0	7.4	8.2	12.5	8.2	12.5	15.5	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

NOTE.—In important apple-producing States not included in table, the principal varieties and their respective percentages of all apples in a normal crop are:

Indiana.—Ben Davis 22.8, Baldwin 7.2, Grimes Golden 6.7, Winesap 6.7, Maiden Blush 5.8, Rome Beauty 4.4, Northern Spy 4.2. *North Carolina.*—Limbertwig 14.3, Winesap, 12.2, Ben Davis 7.5, Early Harvest 7.2, Horse 7.2, Red June 5.9. *Tennessee.*—Winesap 14.1, Ben Davis 12.2, Limbertwig 12.1, Early Harvest 8.4, Horse 6.3, Red June 5.4. *Iowa.*—Ben Davis 15.2, Wealthy 12.4, Jonathan 10.3, Oldenburg 8.9, Grimes Golden 4.9, Northwestern Greening 4.3. *Kansas.*—Ben Davis 19.4, Winesap 15.3, Jonathan 13.8, Missouri Pippin 8.6, Gano 6.0, Maiden Blush 4.3. *Colorado.*—Ben Davis 26.3, Jonathan 18.3, Gano 7.8, Rome Beauty 4.8, Winesap 4.1. *Massachusetts.*—Baldwin 48.4, Rhode Island Greening 9.3, Gravenstein, 5.7, McIntosh Red 5.7, Northern Spy 5.1. *Nebraska.*—Ben Davis 21.3, Winesap 13.6, Jonathan 9.4, Wealthy 6.2, Oldenburg 5.8, Grimes Golden 4.8, Missouri Pippin 4.2, Gano 4.0. *Wisconsin.*—Oldenburg 14.7, Wealthy 13.7, Northwestern Greening 11.1, Fameuse (Snow) 8.0, Wolf River 7.5, Ben Davis 5.1, Golden Russet 4.2. *Maryland.*—Ben Davis 17.0, York Imperial 16.2, Baldwin 8.8, Winesap 7.6, Stayman Winesap 7.0, Arkansas 4.4, Early Harvest 4.2. *New Jersey.*—Baldwin 25.2, Ben Davis 14.5, Rome Beauty 5.0, Early Harvest 4.7, Rhode Island Greening 4.3, Northern Spy 4.2. *Vermont.*—Baldwin 15.1, Rhode Island Greening 12.8 Northern Spy 12.0, Fameuse (Snow) 8.1, McIntosh 6.1, Ben Davis 5.6, Yellow Bellflower 4.2. *Connecticut.*—Baldwin 42.2, Rhode Island Greening 16.9, Golden Russet 5.2. *New Hampshire.*—Baldwin 51.9, Rhode Island Greening 5.9, Northern Spy 5.2, McIntosh 4.4. *Idaho.*—Jonathan 21.3, Rome Beauty 16.6, Ben Davis 13.1, Gano 7.8, Winesap 4.6. *Oklahoma.*—Ben Davis 25.8, Missouri Pippin 12.1, Jonathan 8.2, Winesap 8.1, Arkansas Black 5.6, Gano 4.0. *Georgia.*—Horse 14.3, Ben Davis 12.2, Red June 10.0, Limbertwig 8.8, Winesap 7.6, Early Harvest 6.1, Arkansas Black 4.6.

PEACHES.

TABLE 117.—*Peaches: Production, and prices Sept. 15, by States, 1909–1915.*

[Production 1909 from census; production, 1910–1915, estimates of Bureau of Crop Estimates.]

State.	Production, bushels (000 omitted).							Farm price per bushel (cents).					
	1909	1910	1911	1912	1913	1914	1915	1910	1911	1912	1913	1914	1915
New Hampshire	23	55	50	30	40	3	58	......	......	......	190	......	150
Massachusetts	92	65	85	40	80	31	152	......	275	220	180	180	130
Rhode Island	18	15	20	13	27	14	29	......	......	......	175	170	103
Connecticut	270	300	250	120	260	142	335	......	200	221	147	175	96
New York	1,736	1,825	1,500	1,350	1,750	530	2,106	137	142	160	140	160	90
New Jersey	441	1,000	350	450	325	1,140	1,275	128	175	135	150	98	70
Pennsylvania	1,024	1,600	1,100	600	850	1,541	2,044	137	180	186	180	125	80
Delaware	17	125	40	75	45	608	842	......	......	150	125	95	39
Maryland	325	800	340	450	300	1,032	1,248	91	138	140	105	98	35
Virginia	243	1,150	320	1,000	300	911	1,300	99	138	96	150	100	80
West Virginia	329	650	230	750	120	886	1,164	112	154	112	210	105	75
North Carolina	1,344	2,000	450	2,250	650	1,863	1,955	85	124	93	120	95	90
South Carolina	643	1,150	650	1,050	420	1,166	864	102	128	105	125	110	100
Georgia	2,555	4,700	1,950	5,500	1,770	5,785	5,330	102	140	101	130	100	100
Florida	115	180	120	180	90	188	177	100	150	100	......	100	75
Ohio	1,036	1,250	1,700	1,000	860	1,653	2,399	160	140	144	200	140	97
Indiana	1,174	680	1,150	180	1,240	1,128	648	137	118	169	130	110	120
Illinois	1,223	150	2,600	80	2,200	1,755	874	165	84	146	115	105	110
Michigan	1,687	1,200	2,100	650	1,350	1,247	2,360	139	111	165	150	140	97
Iowa	23	10	140	20	400	472	112	217	152	133	135	135	150
Missouri	1,485	1,300	2,500	800	4,000	3,780	3,300	108	98	107	93	90	85
Nebraska	110	90	20	160	140	192	120	133	125	156	150	150	140
Kansas	25	600	200	500	220	1,760	2,516	105	124	100	150	120	100
Kentucky	1,623	1,050	1,050	1,700	2,000	1,980	1,320	121	109	94	90	75	95
Tennessee	1,579	1,550	400	3,000	900	2,640	2,460	92	125	77	110	78	80
Alabama	1,417	2,050	900	3,000	1,100	2,310	2,640	85	100	100	100	100	90
Mississippi	1,157	1,700	570	2,300	1,250	1,440	1,540	98	121	96	98	85	83
Louisiana	291	500	190	700	470	356	456	100	83	150	110	100	88
Texas	730	2,700	900	3,200	1,600	1,196	4,235	106	148	97	120	140	87
Oklahoma	358	1,040	460	1,500	700	220	2,408	95	128	68	120	130	57
Arkansas	1,902	1,950	2,300	4,700	3,300	3,180	5,940	100	107	78	90	87	63
Colorado	692	390	410	1,100	390	1,025	650	180	175	100	124	60	125
New Mexico	32	70	120	100	60	106	154	128	85	137	150	130	65
Arizona	50	42	52	55	50	60	60	......	225	215	200	175	150
Utah	143	200	210	300	260	380	212	140	183	106	115	71	95
Nevada	3	3	9	10	8	9	7	......	......	......	......	......	......
Idaho	19	60	70	90	70	120	162	......	154	134	120	100	70
Washington	84	320	260	340	310	486	566	90	106	76	110	96	80
Oregon	179	310	180	260	270	387	432	137	174	133	130	110	84
California	267	9,935	7,610	9,640	7,460	10,387	9,768	103	111	94	182	80	55
United States.	[1] 35,470	44,765	33,556	49,243	37,635	54,109	64,218	115.1	128.7	110.0	136.3	102.2	81.1

[1] Includes 6,000 acres in other States.

HOPS.

Table 118.—*Hops: Area and production of undermentioned countries, 1912–1914.*

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Pounds.*	*Pounds.*	*Pounds.*
United States [1]	(2)	(2)	(2)	53,370,645	62,898,718	43,415,352
Canada [3]	1,164	1,164	1,164	1,208,450	1,208,450	1,208,450
Total				54,579,095	64,107,168	44,623,802
EUROPE.						
Austria-Hungary:						
Austria	50,171	50,062	(2)	44,413,872	18,879,533	(2)
Hungary	4,784	5,500	(2)	3,779,566	4,435,200	(2)
Croatia-Slavonia	1,030			232,806		
Total	55,985	55,562	(2)	48,426,244	23,314,733	(2)
Belgium	5,642	5,943	6,140	10,167,836	7,395,331	7,560,000
France	6,998	7,272	6,748	8,757,774	8,028,492	7,034,000
Germany	66,633	66,836	68,410	45,334,292	23,408,222	55,227,408
Russia	(2)	(2)	(2)	14,083,992	16,973,016	14,083,992
United Kingdom: England	34,829	35,676	36,661	41,996,837	28,631,792	56,812,896
Total	194,484	195,586		168,766,975	107,751,586	
AUSTRALASIA.						
Australia:						
Victoria	122	131	117	87,024	155,344	107,632
South Australia	3	5	(2)	2,240	2,240	2,300
Tasmania	1,029	1,247	(2)	1,057,952	1,920,576	2,000,000
Total	1,154	1,383		1,147,216	2,078,160	2,109,932
Grand total				224,493,286	173,936,914	

[1] Commercial movement for years beginning July 1.

[2] No official statistics.

[3] Census of 1910.

Table 119.—*Hops: Total production of countries named in Table 118, 1895–1915.*

Year.	Production.	Year.	Production.	Year.	Production.
	Pounds.		*Pounds.*		*Pounds.*
1895	204,894,000	1902	170,063,000	1909	128,173,000
1896	168,509,000	1903	174,457,000	1910	188,951,000
1897	189,219,000	1904	178,802,000	1911	163,810,000
1898	166,100,000	1905	277,260,000	1912	224,493,000
1899	231,563,000	1906	180,998,000	1913	173,937,000
1900	174,683,000	1907	215,923,000	1914	
1901	201,902,000	1908	230,220,000	1915	

HOPS—Continued.

TABLE 120.—*Hops: Wholesale price per pound, 1900–1915.*

Date.	New York.		Cincinnati.		Chicago.		San Francisco.					
	Choice State.		Prime.[1]		Pacific coast, good to choice.[2]		Sacramento Valley, choice.		Willamette Valley, choice.[3]		Eastern Washington, choice.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	12½	21	10	18	6½	18	......	......	6	16	......	......
1901	13	20	13¾	$17\frac{9}{10}$	12½	19	......	......	10	20	......	......
1902	14	38	14½	30	12½	31	......	......	10	28	......	......
1903	20½	37	24	29½	19	31	......	......	17	28	......	......
1904	32	41	28	37	28½	37	......	......	17½	32	......	......
1905	13	37	13½	33	10	34	......	......	9½	30	......	......
1906	11	25	12	18½	9	22	......	......	8	20	......	......
1907	12	23	12	......	6	18	......	......	5	13	......	......
1908	6	16	8	......	5	11	......	......	3	12½	......	......
1909	12	39	10	28	9	29	......	......	......	......	......	......
1910	21	35	15½	27½	14	26	......	......	......	......	......	......
1911	23	57	......	......	20	50	......	......	......	......	......	......
1912	22	56	22½	49	20	50	17	50	18½	50	18½	50
1913	17	48	18	32	15	31	18	28	18	30	19	30
1914	23	50	13½	27½	13	27	10	28	11	30	10	30
1915.												
January	21	25	17	17	12	15	11½	12½	12	13	11	12
February	16	23	16½	16½	12	16	11½	14	12	15	11	14
March	16	17	17	17	12	16	13	15	14	16	13	15
April	15	17	17	17	12	18	9	15	10	16	10	15
May	13	15	17	17	11	15	9	10	10	11	10	11
June	13	14	16	16	10	13	9	10	10	11	10	11
July	13	14	16	16	10	14	9	[4] 12	10	[4] 12½	10	[4] 12
August	13	14	16	16	12	16	11½	14	11½	16	11	15
September	13	[4] 30	16	16	12	16	13	14	15	16	14	15
October	28	30	15½	15½	12	15	9	14	11	16	10	15
November	28	30	15½	15½	12	16	8	11	11	13	10	13
December	26	30	16	16	12	16	7½	11	10	13	10	13
Year	13	30	15½	17	10	18	7½	15	10	16	10	15

[1] Choice 1900-1907 and 1909-1913.

[2] Common to choice 1901-1903, prime to choice, 1907.

[3] Quotations are for all grades to 1912.

[4] New crop.

TABLE 121.—*Hops: International trade, calendar years 1912–1914.*

[Lupulin and *hopfenmehl* (hop meal) are not included with hops in the data shown. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Austria-Hungary	28,182	15,306	....	Russia	2,294	3,873	253
Belgium	3,969	5,908	....	United Kingdom	1,318	1,263	1,117
France	590	340	....	United States	15,572	25,701	11,056
Germany	18,254	14,299	....	Other countries	239	306	....
Netherlands	535	2,704	....				
New Zealand	277	498	....	Total	71,230	70,198	....

IMPORTS.

Australia	1,129	1,511	....	Netherlands	2,090	4,085	....
Austria-Hungary	487	1,150	....	Russia	1,625	1,165	228
Belgium	6,562	6,975	....	Sweden	1,206	1,018	....
British India	247	162	118	Switzerland	1,746	1,125	....
British South Africa	498	484	442	United Kingdom	26,356	27,562	9,362
Canada	1,667	1,723	1,613	United States	5,663	7,313	7,483
Denmark	1,235	751	....	Other countries	4,387	4,929	....
France	4,229	4,655	....				
Germany	11,790	5,541	....	Total	70,917	70,149	....

BEANS.

Table 122.—*Beans: Area and production of undermentioned countries, 1912–1914.*

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	[1] 784,000	(2)	(2)	[1] 11,145,000	(2)	(2)
Canada:						
Nova Scotia	1,000	1,000	1,000	24,000	22,000	18,000
New Brunswick	(3)	(3)	(3)	7,000	4,000	6,000
Quebec	5,000	5,000	5,000	84,000	97,000	89,000
Ontario	46,000	40,000	38,000	801,000	670,000	684,000
British Columbia	(3)	(3)	(3)	5,000	8,000	....
Total Canada	53,000	47,000	44,000	921,000	801,000	797,000
Total	....	....	....	....	....	....
SOUTH AMERICA.						
Argentina	66,000	65,000	(2)	(2)	(2)	(2)
Chile	90,000	85,000	76,000	1,669,000	1,551,000	1,377,000
EUROPE.						
Austria-Hungary:						
Austria[4]	637,000	644,000	(2)	9,205,000	8,725,000	(2)
Hungary[5]	40,000	(2)	(2)	565,000	(2)	(2)
Do.[6]	1,471,000	(2)	(2)	8,457,000	(2)	(2)
Croatia-Slavonia[5]	25,000	(2)	(2)	272,000	(2)	(2)
Do.[6]	494,000	(2)	(2)	1,956,000	(2)	(2)
Total	2,667,000	....	....	20,455,000	....	....
Belgium	20,000	(2)	(2)	514,000	(2)	(2)
Bulgaria	212,000	(2)	(2)	2,482,000	(2)	(2)
Denmark[4]	10,000	(2)	(2)	240,000	255,000	250,000
France	558,000	583,000	547,000	9,739,000	10,235,000	9,354,000
Italy	2,860,000	2,838,000	2,705,000	19,922,000	23,159,000	16,997,000
Luxemburg	3,000	3,000	(2)	55,000	61,000	(2)
Netherlands	59,000	60,000	59,000	1,939,000	1,821,000	1,946,000
Roumania[5]	103,000	108,000	160,000	1,109,000	1,303,000	2,114,000
Do.[6]	1,316,000	1,365,000	1,409,000	3,528,000	4,454,000	3,669,000
Russia:[7]						
Russia proper	1,088,000	1,111,000	1,195,000	12,011,000	12,199,000	8,481,000
Poland	33,000	25,000	25,000	611,000	439,000	(2)
Northern Caucasia	5,000	6,000	9,000	70,000	79,000	94,000
Total Russia, European.	1,126,000	1,142,000	1,229,000	12,692,000	12,717,000	....
Serbia	[4] 30,000	(2)	(2)	[4] 1,491,000	(2)	(2)
Spain	1,120,000	1,139,000	1,149,000	10,534,000	11,737,000	12,527,000
Sweden	(2)	5,000	6,000	176,000	164,000	75,000
United Kingdom:						
England	270,000	258,000	283,000	7,636,000	7,517,000	8,635,000
Wales	1,000	1,000	1,000	29,000	31,000	35,000
Scotland	9,000	6,000	6,000	306,000	230,000	235,000
Ireland	1,000	1,000	1,000	61,000	64,000	56,000
Total United Kingdom.	281,000	266,000	291,000	8,032,000	7,842,000	8,961,000
ASIA.						
India:						
British[4]	13,818,000	11,707,000	6,104,000	162,624,000	124,096,000	48,309,000
Native States	4,041,000	3,522,000	(2)	(2)	(2)	(2)
Total	17,859,000	15,229,000	....	....	....	....
Japan	1,603,000	1,615,000	(2)	25,077,000	20,818,000	(2)
Formosa[4]	82,000	84,000	(2)	526,000	703,000	(2)
Russia (9 governments)[7]	2,000	3,000	3,000	12,000	18,000	34,000
AFRICA.						
Algeria	136,000	(2)	(2)	1,022,000	(2)	(2)
Egypt	537,000	496,000	(2)	(2)	(2)	(2)

[1] Census of 1909.
[2] No official statistics.
[3] Less than 500 acres.
[4] Includes other pulse.
[5] Grown alone.
[6] Grown with corn.
[7] Includes lentils.

BEANS—Continued.

TABLE 122.—*Beans: Area and production of undermentioned countries, 1912–1914*—Continued.

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
AUSTRALASIA.						
Australia:	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
Queensland	(1)	(1)	(1)	2,000	3,000	(1)
New South Wales	(1)	(1)	(1)	20,000	16,000	(1)
Victoria	12,000	12,000	12,000	187,000	240,000	213,000
South Australia	12,000	9,000	9,000	162,000	132,000	122,000
Western Australia	1,000	1,000	(1)	5,000	8,000	(1)
Tasmania	24,000	18,000	(1)	460,000	476,000	(1)
Total Australia	49,000	40,000	....	836,000	875,000	....

[1] No official statistics.

TABLE 123.—*Beans: Wholesale price per bushel, 1900–1915.*

Date.	Boston.		Chicago.		Detroit.		San Francisco.	
	Pea.		Pea.		Pea.		Small white (per 100 lbs.).	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	....	....	$1.65	$2.25	$1.55	$2.10	$2.85	$4.50
1901	$2.00	$2.75	.90	2.80	1.66	2.40	2.00	5.00
1902	1.60	2.55	.85	2.49	1.28	1.98	3.30	4.65
1903	2.10	2.45	.90	2.40	1.82	2.35	2.40	3.40
1904	1.72½	2.20	.90	2.05	1.58	1.98	2.75	3.32½
1905	1.75	2.00	1.00	1.85	1.49	1.85	2.75	3.60
1906	1.50	1.80	1.10	1.65	1.27	1.61	....	....
1907	1.42	2.45	1.10	2.65	1.28	2.25	2.60	3.60
1908	2.30	2.75	1.65	2.70	2.00	2.65	3.40	4.75
1909	2.25	2.75	1.75	2.67	2.00	2.55	4.00	7.50
1910	2.25	2.70	1.85	2.78	1.92	2.40	3.25	4.85
1911	2.05	2.65	1.76	2.57	1.87	2.40	3.00	4.20
1912	2.55	3.10	1.90	3.20	2.15	2.70	4.00	4.80
1913	2.15	2.60	1.15	2.50	1.75	2.20	4.50	5.85
1914	2.10	3.10	1.60	3.10	1.80	2.90	4.00	6.00
1915.								
January	2.95	3.25	2.40	3.25	2.70	3.05	4.50	5.50
February	3.30	3.50	3.00	3.50	3.00	3.20	5.50	5.70
March	3.15	3.40	3.00	3.50	2.85	3.05	5.50	5.70
April	3.10	3.30	2.80	3.25	2.15	3.00	5.50	5.70
May	3.20	3.30	2.90	3.25	3.00	3.05	5.50	5.70
June	3.15	3.30	2.95	3.25	2.90	3.10	4.85	5.70
July	3.00	3.15	2.62	3.25	2.65	2.90	4.85	4.85
August	2.85	3.15	2.62	3.00	2.60	3.00	4.60	4.85
September	3.20	3.30	2.62	3.25	2.95	3.10	4.50	4.60
October	3.10	3.90	2.75	4.00	3.15	3.50	4.60	5.50
November	3.75	4.10	3.25	4.10	3.30	3.60	5.50	6.15
December	3.95	4.10	3.70	4.10	3.55	3.60	6.10	6.40
Year	2.85	4.10	2.40	4.10	2.15	3.60	4.50	6.40

PEAS.

TABLE 124.—*Peas: Area and production of undermentioned countries, 1912–1914.*

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*
United States	[1] 1,302,000	(2)	(2)	[1] 7,110,000	(2)	(2)
Canada:						
Prince Edward Island	(3)	(3)	(3)	2,000	2,000	3,000
Nova Scotia	(3)	(3)	(3)	5,000	7,000	4,000
New Brunswick	1,000	1,000	(3)	10,000	11,000	10,000
Quebec	30,000	26,000	24,000	449,000	451,000	432,000
Ontario	226,000	190,000	179,000	3,374,000	3,431,000	2,864,000
Manitoba	(3)	(3)	(3)	10,000	....	....
Saskatchewan	(3)	(3)	(3)	11,000	7,000	....
Alberta	(3)	(3)	(3)	9,000	8,000	8,000
British Columbia	1,000	1,000	1,000	43,000	35,000	41,000
Total Canada	260,000	219,000	206,000	3,913,000	3,952,000	3,362,000
SOUTH AMERICA.						
Chile [4]	29,000	35,000	27,000	528,000	501,000	373,000
EUROPE.						
Austria	(5)	(5)	(5)	(5)	(5)	(5)
Hungary [6]	33,000	(2)	(2)	425,000	(2)	(2)
Croatia-Slavonia [6]	11,000	(2)	(2)	154,000	(2)	(2)
Belgium [7]	12,000	(2)	(2)	409,000	(2)	(2)
France [6]	73,000	66,000	61,000	1,277,000	1,178,000	1,116,000
Italy [4]	(2)	(2)	(2)	3,491,000	4,167,000	3,638,000
Luxemburg [6]	2,000	2,000	(2)	26,000	28,000	(2)
Netherlands	64,000	68,000	65,000	1,868,000	1,488,000	1,871,000
Roumania [6]	46,000	61,000	56,000	678,000	1,076,000	869,000
Russia:						
Russia proper	2,138,000	2,265,000	2,206,000	27,080,000	26,930,000	17,329,000
Poland	368,000	367,000	361,000	4,978,000	5,776,000	(2)
Northern Caucasia	6,000	5,000	5,000	70,000	82,000	72,000
Total Russia, European	2,512,000	2,637,000	2,572,000	32,128,000	32,788,000	....
Serbia	(5)	(2)	(2)	70,000	(2)	(2)
Spain [4]	1,204,000	1,244,000	1,268,000	9,885,000	9,298,000	11,016,000
Sweden	(2)	56,000	57,000	1,069,000	1,317,000	717,000
United Kingdom:						
England	172,000	127,000	129,000	4,007,000	3,470,000	2,969,000
Wales	1,000	(3)	(3)	15,000	10,000	10,000
Scotland	(3)	(3)	(3)	18,000	5,000	5,000
Ireland	(3)	(3)	(3)	8,000	7,000	9,000
Total United Kingdom	174,000	128,000	130,000	4,048,000	3,492,000	2,993,000
ASIA.						
Japan	90,000	106,000	(2)	1,914,000	1,935,000	(2)
Russia (9 Governments)	72,000	75,000	82,000	555,000	775,000	997,000
AFRICA.						
Algeria	26,000	(2)	(2)	277,000	(2)	(2)
AUSTRALASIA.						
Australia	(5)	(5)	(5)	(5)	(5)	(5)
New Zealand	20,000	20,000	14,000	666,000	524,000	453,000

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[1] Census of 1909.
[2] No official statistics.
[3] Less than 500 acres.
[4] Includes chick peas, lentils, and vetches.
[5] Included under beans.
[6] Includes lentils.
[7] Includes vetches.

SUGAR.

Table 125.—*Sugar: Production in the United States and its possessions, 1856–57 to 1915–16.*[1]

[Data for 1912–13 and subsequently beet sugar, also Louisiana and Hawaii cane sugar, estimated by United States Department of Agriculture; Porto Rico, by Treasury Department of Porto Rico; Philippine Islands, exports for years ending June 30. For sources of data for earlier years, see Yearbook for 1912, p. 650. A short ton is 2,000 pounds.]

Year.	Beet sugar (chiefly refined).	Cane sugar (chiefly raw).					Total.
		Louisiana.	Other States.[2]	Porto Rico.	Hawaii.	Philippine Islands.	
Average:	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*
1856–7 to 1860–61	....	132,402	5,978	75,364	....	46,446	260,190
1861–62 to 1865–66	269	74,036	1,945	71,765	....	54,488	202,503
1866–67 to 1870–71	448	44,768	3,818	96,114	....	81,485	226,633
1871–72 to 1875–76	403	67,341	4,113	87,606	(3)	119,557	279,020
1876–77 to 1880–81	470	104,920	5,327	76,579	27,040	169.067	383,403
1881–82 to 1885–86	692	124;868	7,280	87,441	76,075	189,277	485,633
1886–87 to 1890–91	1,922	163,049	8,439	70,112	125,440	186,129	555,091
1891–92 to 1895–96	19,406	268,655	6,634	63,280	162,538	286,629	807,142
1896–97 to 1900–1901	58,287	282,399	4,405	61,292	282,585	134,722	823,690
1901–2 to 1905–6	239,730	352,053	12,126	141,478	403,308	108,978	1,257,673
1906–7 to 1910–11	479,153	348,544	13,664	282,136	516,041	145,832	1,785,370
1901–2	184,606	360,277	4,048	103,152	355,611	75,011	1,082,705
1902–3	218,406	368,734	4,169	100,576	437,991	123,108	1,252,984
1903–4	240,604	255,894	22,176	138,096	367,475	82,855	1,107,100
1904–5	242,113	398,195	16,800	151,088	426.248	125,271	1,359,715
1905–6	312,921	377,162	13,440	214,480	429,213	138,645	1,485,861
1906–7	483,612	257,600	14,560	206,864	440,017	132,602	1,535,255
1907–8	463,628	380,800	13,440	230,095	521,123	167,242	1,776,328
1908–9	425,884	397,600	16,800	277,093	535,156	123,876	1,776,409
1909–10	512,469	364,000	11,200	346,786	517,090	140,783	1,892,328
1910–11	510,172	342,720	12,320	349,840	566,821	164,658	1,946,531
1911–12	599,500	352,874	8,000	371.076	595,038	205,046	2,131,534
1912–13	692,556	153,573	9,000	398,304	546,524	234,000	2,033,657
1913–14	733,401	292,698	7,800	351,666	612,000	235,000	2,232,565
1914–15	722,054	242,700	3,920	....	....	206,000	....
1915–16 (preliminary)	862,800	....	3.360	....	....	....	....

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[1] Census returns give production of beet sugar for 1899 as 81,729 short tons; for 1904, 253,921; 1909, 501,682; production of cane sugar in Louisiana for 1839, 59,974 short tons; 1849, 226,001 hogsheads; 1859, 221,726 hogsheads; 1869, 80,706 hogsheads; 1879, 171,706 hogsheads; 1889, 146,062 short tons; 1898, 278.497 short tons; 1899, 159,583; and 1909, 325,516 short tons; cane sugar in other States, 1839, 491 short tons; in 1849 21,576 hogsheads; in 1859, 9,256 hogsheads; in 1869, 6,337 hogsheads; in 1879, 7,166 hogsheads; in 1889, 4,580 short tons; in 1899, 1,691 and in 1909, 8,687 short tons.

[2] Includes Texas only, subsequent to 1902–3. Unofficial returns.

[3] Complete data not available for this period. Production in 1878–79, 1,254 short tons; in 1879–80, 1,304 short tons.

SUGAR—Continued.

TABLE 126.—*Sugar beets and beet sugar: Production in the United States, 1901–1915.*

Year of beet crop, and State.[1]	Number of factories.	Average length of campaign.	Sugar made (chiefly refined).	Sugar beets used.				Analysis of beets.		Recovery of sucrose.[4]		
				Area harvested.	Average yield per acre.	Quantity worked.	Average price per ton.	Percentage of sucrose.[2]	Purity coefficient.[3]	Percentage of weight of beets.	Percentage of total sucrose in beets.	Loss.[5]
	Number.	*Days.*	*Short tons.*	*Acres.*	*Short tons.*	*Short tons.*	*Dolls.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1901	36	88	184,606	175,083	9.63	1,685,689	4.50	14.8	82.20	10.95	73.99	3.85
1902	41	94	218,406	216,400	8.76	1,895,812	5.03	14.6	83.30	11.52	78.90	3.08
1903	49	75	240,604	242,576	8.56	2,076,494	4.97	15.1	......	11.59	76.75	3.51
1904	48	78	242,113	197,784	10.47	2,071,539	4.95	15.3	83.10	11.69	76.41	3.61
1905	52	77	312,921	307,364	8.67	2,665,913	5.00	15.3	83.00	11.74	76.73	3.56
1906	63	105	483,612	376,074	11.26	4,236,112	5.10	14.9	82.20	11.42	76,64	3.48
1907	63	89	463,628	370,984	10.16	3,767,871	5.20	15.8	83.60	12.30	77.85	3.50
1908	62	74	425,884	364,913	9.36	3,414,891	5.35	15.74	83.50	12.47	79.22	3.27
1909	65	83	512,469	420,262	9.71	4,081,382	......	16.10	84.10	12.56	78.01	3.54
1910	61	83	510,172	398,029	10.17	4,047,292	......	16.35	84.35	12.61	77.13	3.74
1911	66	94	599,500	473,877	10.68	5,062,333	5.50	15.89	......	11.84	74.51	4.05
1912	73	86	692,556	555,300	9.41	5,224,377	5.82	16.31	84.49	13.26	81.12	3.05
1913	71	85	733,401	580,006	9.76	5,659,462	5.69	15.78	83.22	12.96	82.13	2.82
1914	60	85	722,054	483,400	10.9	5,288,500	5.45	16.38	83.89	13.65	83.33	2.73
1915	67	......	862,800	624,000	10.4	6,462,000	5.54	......	......	13.4	......	......
1915. Preliminary.												
California	11	......	203,500	124,200	10.0	1,238,000	5.67	......	......	16.4	......	......
Colorado	14	......	235,000	160,800	11.3	1,820,000	5.68	......	......	12.9	......	......
Idaho	4	......	52,700	35,900	10.4	375,000	5.00	......	......	14.1	......	......
Michigan	15	......	129,300	123,300	8.7	1,071,000	5.90	......	......	12.1	......	......
Ohio	4	......	32,100	26,900	10.7	289,000	5.01	......	......	11.1	......	......
Utah	8	......	87,300	59,400	11.6	691,000	5.00	......	......	12.6	......	......
Other States	11	......	122,900	93,500	10.5	978,000	5.47	......	......	12.6	......	......
United States	67	......	862,800	624,000	10.4	6,462,000	5.54	......	......	13.4	......	......

[1] Acreage and production of beets are credited, as in former reports, to the State in which the beets were made into sugar.
[2] Based upon weight of beets.
[3] Percentage of sucrose (pure sugar) in the total soluble solids of the beets.
[4] Percentage of sucrose actually extracted by factories.
[5] Percentage of sucrose (based upon weight of beets) remaining in molasses and pulp.

TABLE 127.—*Cane-sugar production of Louisiana, 1912–1914.*

Parish.	Factories in operation.			Sugar made.			Cane used for sugar.		
	1912	1913	1914	1912	1913	1914	1912	1913	1914
	No.	*No.*	*No.*	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*	*Short tons.*
Ascension	7	4	3	8,342	10,808	5,800	124,934	163,000	84,000
Assumption	16	17	17	14,457	28,664	22,500	243,864	462,000	331,000
Iberia	9	10	7	10,999	15,925	8,000	140,932	204,000	97,000
Iberville	11	14	15	7,942	19,187	18,900	141,581	315,000	283,000
Lafourche	9	13	13	11,728	35,021	34,300	191,714	535,000	447,000
St. James	10	17	16	9,368	19,970	16,900	192,537	327,000	258,000
St. John	5	8	8	11,289	13,596	13,900	161,790	236,000	207,000
St. Martin	3	3	3	5,382	8,114	5,000	62,165	103,000	56,000
St. Mary	15	22	20	25,597	54,689	38,000	291,387	663,000	431,000
Terrebonne	14	13	13	14,463	24,631	23,900	191,984	352,000	295,000
West Baton Rouge	10	10	11	9,328	15,305	16,300	127,196	225,000	214,000
Lafayette and Vermilion	6	6	6	14,547	23,104	14,900	164,580	276,000	163,000
Other[1]	11	16	17	10,131	23,684	24,300	127,910	353,000	333,000
Total Louisiana	126	153	149	153,573	292,698	242,700	2,162,574	4,214,000	3,199,000

[1] Avoyelles, Rapides, St. Landry, East Baton Rouge, Pointe Coupee, West Feliciana, Jefferson, Orleans, Plaquemines, and St. Charles.

NOTE.—The average yield of cane per acre in Louisiana was 11 tons in 1912, 17 in 1913, 15 in 1914.

SUGAR—Continued.

TABLE 128.—*Cane-sugar production of Hawaii, 1912–1914.*

Island, and year ending Sept. 30.	Factories in operation.	Average length of campaign.	Sugar made.	Cane used for sugar.			Average extraction of sugar.		
				Area harvested.	Average yield per acre.	Production.	Per cent of cane.	Per short ton of cane.	Per acre of cane.
	No.	*Days.*	*Short tons.*	*Acres.*	*Short tons.*	*Short tons.*	*Per cent.*	*Pounds.*	*Pounds.*
Hawaii:									
1914	23	174	213,000	51,000	36	1,854,000	11.49	230	8,353
1913	24	170	197,212	53,600	32	1,703,000	11.58	232	7,364
1912	24	204	209,914	52,900	34	1,799,000	11.67	233	7,936
Kauai:									
1914	9	214	121,000	21,600	50	1,089,000	11.11	222	11,204
1913	9	198	100,340	20,800	42	841,000	11.93	239	9,665
1912	9	206	96,845	18,900	43	807,000	12.00	240	10,248
Maui:									
1914	7	167	145,000	19,400	54	1,054,000	13.76	275	14,948
1913	7	152	124,820	19,700	47	929,000	13.44	269	12,684
1912	7	192	148,740	19,400	55	1,074,000	13.85	277	15,334
Oahu:									
1914	7	188	133,000	20,700	44	903,000	14.73	295	12,850
1913	10	157	124,152	20,500	49	1,003,000	12.38	248	12,153
1912	10	200	139,539	21,800	50	1,094,000	12.75	255	12,802
Territory of Hawaii:									
1914	46	183	612,000	112,700	43	4,900,000	12.49	250	10,861
1913	50	169	546,524	114,600	39	4,476,000	12.21	244	9,544
1912	50	200	595,038	113,000	42	4,774,000	12.46	249	10,532

TABLE 129.—*Sugar: Wholesale price per pound, on New York market, 1900–1915.*

Date.	Raw.				Refined.									
	Molasses, 89° polarization.[1]		Centrifugal, 96° polarization.		Cut loaf.		Powdered.		Granulated, fine or standard.		Soft sugar No. 1.		Soft sugar No 15.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	3.81	4.88	4.25	5.00	5.35	6.55	5.05	6.25	4.95	6.15	4.60	5.80	4.15	5.30
1901	3.16	3.88	3.62	4.38	5.15	6.10	4.75	5.70	4.65	5.60	4.30	5.25	3.65	4.60
1902	2.44	3.50	3.25	4.00	5.05	5.55	4.55	5.05	4.45	4.95	4.20	4.70	3.65	4.15
1903	3.00	3.44	3.50	3.94	4.95	5.60	4.55	5.10	4.45	5.00	4.20	4.75	3.65	4.20
1904	2.81	4.38	3.31	4.88	5.10	6.45	4.50	5.85	4.40	5.75	4.15	5.40	3.60	4.60
1905	2.75	4.75	3.75	5.25	5.30	6.85	4.70	6.25	4.60	6.15	4.25	5.80	3.55	5.00
1906	2.62	3.56	3.33	4.25	5.20	5.70	4.60	5.10	4.50	5.00	4.25	4.70	3.65	4.05
1907	2.88	3.63	3.38	3.98	5.40	5.70	4.80	5.10	4.70	5.00	4.45	4.75	3.85	4.15
1908	3.17	3.92	3.07	4.48	5.45	6.30	4.75	5.60	4.65	5.50	4.40	5.25	3.80	4.65
1909	2.86	3.70	3.61	4.45	5.35	6.10	4.65	5.40	4.55	5.30	4.30	5.05	3.70	4.45
1910	3.05	3.73	3.80	4.48	5.40	6.05	4.70	5.35	4.60	5.25	4.35	5.10	3.75	4.50
1911	2.67	5.21½	3.42	5.96	5.40	7.55	4.70	6.85	4.60	6.80	4.45	6.60	3.85	6.00
1912	2.98½	4.05	3.73	4.80	5.70	6.65	5.00	5.90	4.90	5.85	4.65	5.65	4.05	5.05
1913	2.37½	3.05	3.12	3.80	5.05	5.70	4.25	5.00	4.15	4.95	4.00	4.65	3.40	4.05
1914	2.27	5.87	2.92	6.52	5.05	8.40	3.95	7.60	3.85	7.55	3.60	7.30	3.00	6.70
1915.														
January	3.20	3.46	3.95	4.20	5.85	5.95	5.05	5.15	5.95	5.10	4.70	4.80	4.10	4.20
February	3.45	4.27	4.20	5.02	5.95	6.65	5.15	5.85	5.05	5.80	4.80	5.50	4.20	4.90
March	3.81	4.18	4.58	4.95	6.65	6.80	5.85	6.00	5.75	5.95	5.50	5.65	4.90	5.05
April	3.84	4.12	4.61	4.89	6.80	6.90	6.00	6.10	5.90	6.05	5.65	5.75	5.05	5.15
May	3.87	4.12	4.64	4.89	......	6.90	......	6.10	6.00	6.05	......	5.75	......	5.15
June	4.12	4.18	4.89	4.95	6.90	7.00	6.10	6.20	6.00	6.15	5.75	5.85	5.15	5.25
July	3.87	4.27	4.64	4.95	6.70	7.00	5.90	6.20	5.80	6.15	5.55	5.85	4.95	5.25
August	3.62	4.18	4.39	4.95	6.50	6.70	5.70	5.90	5.60	5.85	5.35	5.55	4.75	4.95

[1] Muscovado, 89° polarization, 1900 to 1908, inclusive.

SUGAR—Continued.

TABLE 129.—*Sugar: Wholesale price per pound, on New York market, 1900–1915*—Contd.

Date.	Raw.				Refined.									
	Molasses, 89° polarization.		Centrifugal, 96° polarization.		Cut loaf.		Powdered.		Granulated, fine or standard.		Soft sugar No. 1.		Soft sugar No. 15.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
September	2.98	4.00	3.75	4.77	5.80	6.50	5.00	5.70	4.90	5.65	4.65	5.35	4.05	4.75
October	2.73	3.68	3.50	4.45	5.80	6.15	5.00	5.35	4.90	5.30	4.65	5.00	4.05	4.40
November	3.62	4.37	4.39	5.14	6.25	6.90	5.45	6.10	5.35	6.05	5.10	5.75	4.50	5.15
December	3.68	4.43	4.45	5.20	6.85	7.05	6.05	6.25	5.95	6.20	5.70	5.90	5.10	5.30
Year	2.73	4.43	3.50	5.20	5.80	7.05	5.00	6.25	4.90	6.20	4.65	5.90	4.05	5.30

TABLE 130.—*Sugar: International trade, calendar years 1912–1914.*

[The following kinds and grades have been included under the head of sugar: Brown, white, candied, caramel, *chancaca* (Peru), crystal cube, maple, muscovado, *panela*. The following have been excluded: "Candy" (meaning confectionery), confectionery, glucose, grape sugar, jaggery, molasses, and sirup. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (preliminary).	Country.	1912	1913	1914 (preliminary).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Argentina	228	131	142,616	Germany	953,743	2,462,020	....
Austria-Hungary	1,540,900	2,368,765	....	Guadeloupe	84,882	[1] 84,882	....
Barbados	57,902	[1] 57,902	....	Martinique	86,991	[1] 86,991	....
Belgium	348,081	251,935	....	Mauritius	454,550	[1] 454,550	....
Brazil	10,520	11,832	70,239	Netherlands	474,368	440,817	....
British Guiana	174,319	[1] 174,319	....	Peru	328,902	315,041	389,488
British India	80,454	53,181	43,207	Philippine Islands	434,475	346,858	521,385
China	43,154	14,555	19,040	Reunion	58,812	58,812	....
Cuba	4,357,051	5,476,901	5,574,683	Russia	830,036	[1] 324,837	257,484
Dominican Republic	195,714	173,832	....	Trinidad and Tobago	74,290	[1] 74,290	....
Dutch East Indies	2,942,217	2,823,310	....	United Kingdom	67,012	52,492	33,975
Egypt	20,769	11,316	29,398	Other countries	701,564	784,382	....
Fiji	138,271	[1] 138,271	....				
France	373,858	442,554	....	Total	14,833,063	17,484,776	....

IMPORTS.

Country.	1912	1913	1914 (preliminary).	Country.	1912	1913	1914 (preliminary).
Argentina	66,658	166,578	14,468	Netherlands	178,137	147,002	....
Australia	220,597	167,690	....	New Zealand	135,902	137,790	....
British India	1,364,955	1,922,009	1,211,769	Norway	98,505	118,049	129,582
				Persia	234,308	234,308	....
British South Africa	39,728	60,480	48,883	Portugal	78,867	85,631	....
Canada	651,875	670,234	691,166	Singapore	224,829	224,529	....
Chile	149,486	197,073	185,425	Switzerland	268,289	258,513	....
China	607,287	948,230	810,731	Turkey [2]	445,111	445,111	....
Denmark	31,144	26,888	....	United Kingdom	3,693,670	3,872,309	3,761,740
Egypt	77,277	72,609	27,964	United States [3]	4,316,975	4,762,014	5,417,995
Finland	103,818	105,106	....	Uruguay [4]	57,087	57,087	....
France	672,273	253,435	....	Other countries	734,672	792,360	....
Italy	15,768	15,345	10,774				
Japan	303,093	725,067	....	Total	14,770,311	16,465,447	....

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[1] Year preceding.

[2] Data for year beginning March 14, 1910.

[3] Not including receipts from Hawaii, amounting in 1912, to 1,205,465,510; 1913, 1,085,362,344, and 1914, 1,210,862,124 pounds; and from Porto Rico, in 1912, 734,289,872; 1913, 765,420,310; and 1914, 641,754,932 pounds.

[4] Data for 1908.

SUGAR—Continued.

TABLE 131.—*Sugar production of undermentioned countries, campaigns of 1912–13 to 1914–15.*

BEET SUGAR (RAW).

Country.	1912–13	1913–14	1914–15
NORTH AMERICA.	*Short tons.*	*Short tons.*	*Short tons.*
United States [1]	692,556	733,401	722,054
Canada	12,439	[1] 11,982	[1] 13,773
Total	704,995	745,383	735,827
EUROPE.			
Austria-Hungary:			
Austria	1,442,159	1,287,787	1,288,960
Hungary	651,587	566,382	477,272
Belgium	326,653	251,023	224,437
Denmark	168,652	156,637	168,652
France [1]	967,440	790,790	333,953

Country.	1912–13	1913–14	1914–15
EUROPE—cont'd.	*Short tons.*	*Short tons.*	*Short tons.*
Germany	2,983,085	2,993,704	2,755,750
Italy	218,628	335,413	183,753
Netherlands	315,775	231,073	263,852
Roumania	38,314	41,240	36,297
Russia	1,361,842	1,681,247	....
Serbia	13,338	7,165	2,205
Spain	171,839	186,680	110,946
Sweden	145,462	150,760	169,644
Switzerland	....	4,861	3,208
Total	8,804,774	8,684,762	....
Grand total	9,509,769	9,430,145	....

CANE SUGAR.

NORTH AMERICA.			
United States:			
Louisiana	154,000	293,000	243,000
Texas [2]	9,000	8,000	4,000
Hawaii	547,000	612,000	....
Porto Rico	398,000	364,000	....
Central America:			
Costa Rica	3,000	....	....
Guatemala	8,000	....	....
Nicaragua	4,000	....	....
Salvador	18,000	....	....
Mexico [2]	164,000	143,000	121,000
West Indies:			
British—			
Antigua	14,000	[3] 12,000	....
Barbados	32,000	11,000	....
Jamaica	20,000	15,000	17,000
St. Christopher-Nevis	12,000	13,000	....
St. Lucia [3]	5,000	5,000	....
Trinidad and Tobago	46,000	47,000	62,000
Cuba	2,737,000	2,909,000	2,980,000
Danish [3]	7,000	6,000	5,000
Dominican Republic [3]	111,000	117,000	119,000
French—			
Guadeloupe [3]	35,000	44,000	44,000
Martinique [3]	44,000	43,000	44,000
Total	4,368,000	[4] 4,642,000	....
SOUTH AMERICA.			
Argentina	162,000	304,000	370,000
Brazil	343,000	[2] 228,000	[2] 269,000
Guiana:			
British [3]	87,000	98,000	120,000
Dutch [3]	11,000	15,000	13,000
Peru	203,000	[3] 195,000	[3] 193,000
Total	806,000	840,000	965,000

EUROPE.			
Spain	15,000	8,000	8,000
ASIA.			
British India	2,894,000	2,566,000	2,651,000
Formosa	79,000	213,000	222,000
Japan	68,000	73,000	60,000
Java	1,616,000	1,541,000	....
Philippine Islands	345,000	408,000	....
Total	5,002,000	4,801,000	....
AFRICA.			
Egypt	83,000	76,000	83,000
Mauritius	239,000	275,000	303,000
Natal	96,000	97,000	115,000
Portuguese East Africa	34,000	38,000	45,000
Reunion	43,000	41,000	44,000
Total	495,000	527,000	590,000
OCEANIA.			
Australia	145,000	297,000	269,000
Fiji	77,000	110,000	114,000
Total	222,000	407,000	383,000
Total cane sugar	10,908,000	[4] 11,225,000	....
Total beet and cane sugar	20,518,000	20,655,000	....

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[1] Refined sugar. [2] Unofficial figures. [3] Exports. [4] Excluding Central America.

SUGAR—Continued.

TABLE 132.—*Sugar: Total production of countries mentioned in Table 131, 1895–96 to 1913–14.*

Year.	Production.		
	Cane.[1]	Beet.	Total.
	Short tons.	*Short tons.*	*Short tons.*
1895–96	3,259,000	4,832,000	8,091,000
1896–97	3,171,000	5,549,000	8,720,000
1897–98	3,206,000	5,457,000	8,663,000
1898–99	3,355,000	5,616,000	8,971,000
1899–1900	3,389,000	6,262,000	9,651,000
1900–1901	4,084,000	6,795,000	10,879,000
1901–2	6,818,000	7,743,000	14,561,000
1902–3	6,782,000	6,454,000	13,236,000
1903–4	6,909,000	6,835,000	13,744,000
1904–5	7,662,000	5,525,000	13,187,000
1905–6	7,551,000	8,090,000	15,641,000
1906–7	8,365,000	7,587,000	15,952,000
1907–8	7,926,000	7,390,000	15,316,000
1908–9	8,654,000	7,350,000	16,004,000
1909–10	9,423,000	6,991,000	16,414,000
1910–11	9,540,000	9,042,000	18,582,000
1911–12	10,275,000	7,072,000	17,347,000
1912–13	10,908,000	9,509,769	20,518,000
1913–14	[2]11,225,000	9,430,145	20,655,000

[1] Prior to 1901–2 these figures include exports instead of production for British India.
[2] Excluding Central America.

TABLE 133.—*Sugar beets: Area and production of undermentioned countries, 1912–1914.*

Country.	Area.			Production.		
	1912	1913	1914	1912	1913	1914
NORTH AMERICA.	*Acres.*	*Acres.*	*Acres.*	*Short tons.*	*Short tons.*	*Short tons.*
United States	555,300	580,000	483,400	5,224,000	5,659,000	5,288,500
Canada	18,900	17,000	12,100	201,000	148,000	108,600
Total	574,200	597,000	446,500	5,425,000	5,807,000	5,397,100
EUROPE.						
Austria-Hungary:						
Austria	653,500	629,200	[1] 599,600	8,734,000	7,674,000	[1] 7,468,000
Hungary	425,700	438,500	439,200	5,286,000	5,264,000	4,425,000
Croatia-Slavonia	9,000	11,400	....	48,000	98,000	....
Bosnia-Herzegovina	2,800	2,800	....	11,800	12,800	....
Belgium	152,900	129,500	129,900	1,907,400	1,534,000	....
Bulgaria	8,200	8,600	....	67,500	93,700	331,000
Denmark	80,000	75,600	76,400	1,025,000	663,000	1,066,000
England	3,900	4,100	2,300	....	....	....
France	630,500	616,400	[2] 330,800	7,961,000	6,547,000	[2] 4,135,000
Germany	1,353,200	1,316,700	1,406,200	18,345,000	18,673,000	18,650,000
Italy	133,400	152,700	100,600	1,921,000	3,009,000	1,488,000
Netherlands	160,200	149,000	156,300	2,399,000	1,835,000	2,198,000
Roumania	35,500	32,200	36,500	322,000	311,000	248,000
Russia	1,847,300	1,756,100	....	11,821,000	13,615,000	....
Serbia	22,100	....	....	165,000	....	....
Spain	106,400	106,500	78,600	1,303,000	1,478,000	814,000
Sweden	66,900	70,900	79,700	933,000	932,000	967,000
Switzerland	....	2,000	2,000	....	34,900	29,800
Total	5,691,500	5,502,200	....	62,249,700	61,774,400	....
Grand total	6,265,700	6,099,200	....	67,674,700	67,581,400	....

[1] Excluding Galicia and Bukowina.
[2] Excluding invaded area.

TEA.

TABLE 134.—*Tea: International trade, calendar years 1912–1914.*

["Tea" includes tea leaves only and excludes dust, sweepings, and *yerba maté*. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
British India	279,230	291,583	292,607	Japan	35,116	30,128	....
Ceylon	192,020	[1] 192,020	....	Singapore	2,913	[1] 2,913	....
China	196,458	192,122	199,440	Other countries	8,236	6,997	....
Dutch East Indies	66,610	58,527	....				
Formosa	23,668	23,931	22,936	Total	804,281	798,221	....

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Argentina	4,082	4,148	3,103	Germany	9,124	9,458	....
Australia	36,756	37,349	....	Netherlands	12,143	12,052	....
Austria-Hungary	3,793	3,575	....	New Zealand	7,684	7,069	....
British India	9,167	8,653	8,816	Persia	11,120	[1] 11,120	....
British South Africa	6,115	6,567	6,374	Russia	151,037	167,140	159,992
Canada	42,658	35,927	39,035	Singapore	6,692	[1] 6,692	....
Chile	3,812	3,849	2,787	United Kingdom	295,409	305,690	317,664
China	18,445	25,898	22,684	United States	98,706	89,018	97,810
Dutch East Indies	7,624	7,889	....	Other countries	38,486	36,685	....
France	2,886	2,660	....				
French Indo-China	2,920	5,320	....	Total	768,659	786,759	....

[1] Year preceding.

TABLE 135.—*Tea: Wholesale price per pound, on New York market, 1900–1915.*

Date.	Foochow, fair to fine.		Formosa, fine to choice.		Japans, pan-fired.		India orange pekoe.		Ceylon orange pekoe.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
1900	22	28	27	45	....	....	27	30	27	37
1901	20	28	27	43	....	....	26	30	26	37
1902	21½	29	27½	47	18	33	26	35	26	36
1903	10	29	20½	50	8	33	19	35	19	36
1904	9	18	25	50	9½	14	18	25	18	27
1905	9	18	26	50	11	14	19	25	19	28
1906	8½	18	22	50	9½	16	19	25½	19	28
1907	9½	21	22	38	14½	35	15	25½	16	30
1908	12½	21	20	45	18	35	17	25	18	30
1909	12½	27	20	40	18	38	18	26	18	28
1910	10½	27	23	64½	17½	35	18	26½	18	26
1911	10	22¾	23½	45½	17	32	18	26½	18	26
1912	11½	22¾	20	39	15	21	18	25	20	26
1913	12	22	24	39	13½	35	18½	24	18½	24
1914	12	22	23	39	12½	38	18½	27	18½	26
1915.										
January	15	22	23	39	18	28	(1)	(1)	21	22
February	15	22	23	39	18	28	(1)	(1)	21	27
March	15½	22	23	39	18	33	(1)	(1)	25	30
April	15½	22	23	39	19	33	....	....	27	30
May	15½	22	23	39	19	35	....	....	27	30
June	16½	22	23	39	23	35	....	....	27	30
July	17	22	23	39	23	35	31	32	29	31
August	18	21	23	39	20	40	28	32	27	31
September	18	21	23	39	20	40	24	29	24	28
October	18	21	23	39	19	40	24	26	24	26
November	18	21	23	39	19	40	24	26	24	26
December	18	21	23	39	18	40	24	26	24	26
Year	15	22	23	39	18	40	24	32	21	31

[1] Nominal.

COFFEE.

TABLE 136.—*Coffee: International trade, calendar years 1912–1914.*

[The item of coffee comprises unhulled and hulled, roasted, ground, or otherwise prepared, but imitation or "surrogate" coffee and chicory are excluded. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Belgium	53,036	24,945	....	Netherlands	180,792	202,823	....
Brazil	1,597,950	1,754,973	1,490,715	Nicaragua	10,201	26,440	22,817
British India	34,937	22,073	39,973	Salvador	59,216	63,471	76,425
Colombia	123,442	134,993	136,500	Singapore	4,842	4,842	....
Costa Rica	26,980	28,702	39,059	United States [2]	49,716	52,905	48,179
Dutch East Indies	75,179	63,799	....	Venezuela	117,042	142,016	121,350
Guatemala	82,855	93,014	....	Other countries	66,047	61,603	....
Haiti	78,864	57,594	....				
Jamaica	10,034	[1] 10,034	....	Total	2,624,892	2,797,986	....
Mexico	53,759	[1] 53,759	....				

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Argentina	31,063	32,602	30,925	Norway	25,907	30,193	25,665
Austria-Hungary	124,537	130,960	....	Russia	25,968	27,862	18,244
Belgium	110,434	118,195	....	Singapore	6,527	[1] 6,527	....
British South Africa	26,004	26,910	25,820	Spain	29,500	33,365	30,280
Cuba	22,292	25,108	17,672	Sweden	67,667	75,484	....
Denmark	31,637	36,091	....	Switzerland	23,942	25,470	....
Egypt	15,774	13,975	13,116	United Kingdom	27,987	28,100	28,846
Finland	28,331	28,371	....	United States	942,515	852,529	1,011,072
France	245,243	254,157	....	Other countries	106,755	115,296	....
Germany	376,869	371,131	....				
Italy	60,921	63,194	62,176	Total	2,586,161	2,615,092	....
Netherlands	256,288	319,572	....				

[1] Year preceding.

[2] Chiefly from Porto Rico.

TABLE 137.—*Coffee: Wholesale price per pound, on the New York and New Orleans markets, 1900–1915.*

Date.	New York.												New Orleans.			
	Rio No. 7.		Santos No. 7.		Mocha.		Padang.		Cucuta, washed.		Mexican Cordoba, washed.[1]		Rio No. 7.		Santos No. 7.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	6¾	10	6¾	10	16	19¾	18	25¼	9	13½	9	14	6⅞	10	7	10⅛
1901	5½	7¾	5½	7¾	15½	19½	15	19	7½	13	8	12½	5¾	7⅞	5⅞	8
1902	5	7¾	5	7¾	13	19	17	19	8	13½	8¾	12¼	5⅝	7¼	5½	7⅜
1903	5 1/16	7⅜	5 1/16	7⅜	12	19	15½	17	8	13	8	13	5⅜	7⅜	5½	6½
1904	6½	9 7/16	6½	9 7/16	13	18	15½	16½	9	13¾	8¾	13½	7	9⅛	.....	.....
1905	7½	9⅛	7½	9⅛	16	18½	15	16	9	13	10¼	13	7½	9	7¾	9
1906	6¾	9	6¾	9	15	21	13	15½	9¼	12	9¼	12¾	7⅛	8⅝	7¼	8¾
1907	6	7¼	6	7¼	15½	19	13	21	9⅛	13¾	9½	13	6	7⅝	6⅜	7¾
1908	6	7⅞	6	7⅞	14½	19	10	21	10	13½	10¼	13	5⅝	6⅝	7	7¾
1909	6½	8⅝	6½	8¾	14	17	10	20½	9⅝	14	10¼	13¼	7⅛	8⅝	7¼	8⅞
1910	8	13½	8½	13⅝	14¼	17⅛	17	20	10	16⅛	10½	15½	8¼	13½	8⅝	13⅝
1911	11¾	16⅛	12⅛	16½	15¾	20	18½	22	13¾	18	14½	18¾	11⅜	16⅛	12⅛	16½
1912	13⅞	15¼	14¼	16¼	18½	21	19½	22	15⅛	18½	15¾	18½	13⅞	15¼	14¼	16⅜
1913	8⅞	14	10¾	15⅝	18	21	19	23	11¾	17¾	15	18	9	14	10½	15
1914	6¼	9⅞	8¼	12¾	17½	30	21	24	11	18¼	12	17¼	6⅜	10⅜	8¾	13½
1915.																
January	7¼	8¼	8½	9	21½	30	21	23½	12¼	15¾	12	14½	7½	8⅝	9	9¼
February	7⅝	8¼	8⅜	9	23	30	21	23	12¾	15¾	12	14½	7¾	8⅝	8¾	9¼
March	7⅝	8	8½	9¼	23	30	21	23	12¾	15½	12	14	7¾	8½	8¾	9⅝
April	7¾	8⅛	9	9¼	23	30	21	23	13	15¼	12	14	7¾	8⅜	9⅜	9⅜
May	7⅛	7¾	8¾	9¼	23	30	21	23	11½	15½	11½	14	7	7⅞	8¾	9½
June	7	7⅜	8½	9	23	30	21	22	11¼	14½	11	13½	7⅛	7½	8¾	9
July	7⅜	7¾	8¾	9	23	30	21	22	11¼	14½	11	13	7⅜	7½	8¾	9
August	7	7⅜	8⅜	9	25	27	21	22	11	14½	11	13	7	7⅜	7¾	8¾
September	6⅝	7	7¾	8½	25	27	21	22	11	14	10½	13	6⅞	7½	7⅝	8½
October	6¾	7½	7¾	8	25	27	21	23	11	15	10½	13	7	7¾	7⅞	8½
November	7½	7⅞	7¾	8½	25	27	22½	23	11½	15¼	11½	13½	7½	8	8⅜	8¾
December	7⅝	7⅝	7⅞	8⅜	25	27	22½	23	11½	15¼	11	13½	7⅝	7⅞	8⅛	8⅜
Year	6⅝	8¼	7⅞	9¼	21½	30	21	23½	11	15¾	10½	14½	6⅞	8⅝	7⅝	9⅝

[1] Prices nominal because of small arrivals (January to September, inclusive).

OIL CAKE AND OIL-CAKE MEAL.

TABLE 138.—*Oil cake and oil-cake meal: International trade, calendar years 1912–1914.*

[The class called here "oil cake and oil-cake meal" includes the edible cake and meal remaining after making oil from such products as cotton seed, flaxseed, peanuts, corn, etc. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Argentina	38,849	46,191	38,367	Italy	57,795	43,401	120,607
Austria-Hungary	127,661	111,252	....	Mexico	40,138	[1] 40,138	....
Belgium	157,458	125,241	....	Netherlands	253,003	228,492	....
British India	333,504	400,818	334,141	Russia	1,552,042	1,620,106	935,683
Canada	69,353	65,530	35,567	United Kingdom	69,512	52,741	73,295
China	112,629	175,073	190,672	United States	1,980,166	1,952,184	1,579,171
Denmark	21,742	21,061	....	Other countries	80,677	97,345	....
Egypt	178,083	138,839	176,339				
France	471,101	473,550	....	Total	6,124,895	6,240,498	....
Germany	581,182	648,536	....				

IMPORTS.

Austria-Hungary	74,091	79,860	....	Japan	190,495	284,310	....
Belgium	534,293	567,391	....	Netherlands	822,757	766,498	....
Canada	10,594	11,090	15,625	Norway	65,400	66,407	83,044
Denmark	1,114,414	1,250,972	....	Sweden	385,474	351,106	....
Dutch East Indies	38	465	....	Switzerland	75,158	54,955	....
Finland	32,071	25,533	....	United Kingdom	863,621	904,606	731,264
France	341,642	223,928	....	Other countries	20,616	21,776	....
Germany	1,750,872	1,826,618	....				
Italy	8,627	6,520	2,471	Total	6,290,163	6,442,035	....

[1] Year preceding.

ROSIN.

TABLE 139.—*Rosin: International trade, calendar years 1912–1914.*

[For rosin, only the resinous substance known as "rosin" in the exports of the United States, is taken. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Austria-Hungary	2,388	2,327	....	Russia	49,507	55,922	41,494
Belgium	60,312	57,491	....	Spain	25,068	18,328	19,148
France	145,144	90,159	....	United States	680,777	729,419	489,580
Germany	37,609	56,884	....	Other countries	2,302	3,394	....
Greece	14,061	3,982	....				
Netherlands	61,698	59,713	....	Total	1,078,866	1,077,619	....

IMPORTS.

Argentina	32,005	43,906	35,463	Italy	37,569	39,918	32,978
Australia	13,067	16,924	....	Japan	11,591	15,649	....
Austria-Hungary	82,270	74,208	....	Netherlands	83,794	79,452	....
Belgium	73,957	82,426	....	Norway	6,281	8,104	5,709
Brazil	41,033	41,730	29,340	Roumania	5,344	[1] 5,344	....
British India	7,358	5,705	3,535	Russia	68,047	81,373	62,728
Canada	26,381	28,462	22,883	Serbia[2]	586	586	....
Chile	7,129	7,832	4,515	Spain	739	683	645
Cuba	6,240	4,771	4,239	Switzerland	5,383	5,209	....
Denmark	3,329	3,513	....	United Kingdom	176,344	187,934	154,655
Dutch East Indies	23,474	17,287	....	Uruguay[3]	5,837	5,837	....
Finland	5,126	7,594	....	Other countries	16,987	17,928	....
France	3,186	1,966	....				
Germany	250,181	212,226	....	Total	993,238	996,567	....

[1] Year preceding.

[2] Data for 1911.

[3] Data for 1908.

TURPENTINE.

Table 140.—*Turpentine (spirits): International trade, calendar years 1912–1914.*

["Spirits of turpentine" includes only "spirits" or "oil" of turpentine and, for Russia, *skipidar;* it excludes crude turpentine, pitch, and, for Russia, *terpentin.* See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Gallons.	*Gallons.*	*Gallons.*		*Gallons.*	*Gallons.*	*Gallons.*
Belgium	1,871	1,693	....	Spain	1,005	1,329	1,052
France	2,071	2,990	....	United States	20,811	20,018	11,118
Germany	494	578	....	Other countries	750	741	....
Netherlands	3,471	4,112	....				
Russia	2,336	2,269	1,439	Total	32,809	33,730	....

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Argentina	607	698	488	New Zealand	216	200	....
Australia	681	524	....	Russia	288	363	242
Austria-Hungary	2,775	2,668	....	Sweden	132	158	....
Belgium	3,054	2,994	....	Switzerland	466	592	....
Canada	1,315	1,253	1,152	United Kingdom	9,837	8,356	5,031
Chile	226	180	140	Other countries	1,185	1,161	....
Germany	9,325	10,726	....				
Italy	993	1,061	874	Total	36,070	36,998	....
Netherlands	4,970	6,064	....				

INDIA RUBBER.

Table 141.—*India rubber: International trade, calendar years 1912–1914.*

[Figures for india rubber include "india rubber," so called, and *caoutchouc, caucho, jebe* (Peru), *hule* (Mexico), *borracha, massaranduba, mangabeira, maniçoba, sorva* and *seringa* (Brazil), *gomelastiek* (Dutch East Indies), *caura, sernambi* (Venezuela). See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Angola	6,034	4,458	....	Ivory Coast	3,034	[1]3,034	....
Belgian Kongo	7,737	[1]7,737	....	Kamerun	6,197	2,608	....
Belgium	24,608	24,456	....	Mexico	12,197	[1]12,197	....
Bolivia	8,994	11,339	9,887	Netherlands	8,686	12,368	....
Brazil	93,224	79,876	73,924	Peru	7,039	6,131	5,009
Dutch East Indies	5,945	15,910	....	Senegal	457	[1]457	....
Ecuador	[2]1,210	428	....	Singapore	8,472	[1]8,472	....
France	24,588	20,733	....	Southern Nigeria	1,579	[1]1,579	....
French Guinea	4,499	[1]4,499	....	Venezuela	990	527	252
French Kongo	4,191	[1]4,191	....	Other countries	68,749	71,276	....
Germany	10,898	8,756	....				
Gold Coast	1,991	[1]1,991	....	Total	311,319	303,023	....

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Austria-Hungary	7,841	7,975	....	Russia	20,600	28,135	25,026
Belgium	30,138	32,492	....	United Kingdom	41,942	56,617	41,596
Canada	5,498	4,802	5,108	United States	118,058	115,881	143,065
France	37,080	33,836	....	Other countries	16,207	17,240	....
Germany	45,385	45,188	....				
Italy	7,704	6,271	6,733	Total	342,309	366,160	....
Netherlands	11,856	17,723	....				

[1] Year preceding.

[2] Data for 1911.

SILK.

TABLE 142.—*Production of raw silk in undermentioned countries, 1910–1914.*

[Estimates of the Silk Merchants' Union of Lyons, France.]

Country.	1910	1911	1912	1913	1914 (preliminary).
Western Europe:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Italy	8,702,000	7,694,000	9,050,000	7,804,000	8,995,000
France	701,000	886,000	1,113,000	772,000	893,000
Spain	183,000	194,000	172,000	181,000	154,000
Austria	776,000	772,000	410,000	331,000	386,000
Hungary			238,000	271,000	286,000
Total	10,362,000	9,546,000	10,983,000	9,359,000	10,714,000
Levant and Central Asia:					
Broussa and Anatolia	1,058,000	1,290,000	844,000	1,025,000	794,000
Syria and Cyprus	1,190,000	1,157,000	882,000	1,030,000	926,000
Other Provinces of Asiatic Turkey	287,000	353,000	254,000	298,000	242,000
Turkey in Europe[1]	....	....	573,000	187,000	132,000
Saloniki and Adrianople	794,000	827,000	....	....	....
Balkan States (Bulgaria, Servia, and Roumania)	386,000	375,000	320,000	298,000	231,000
Greece, Saloniki, and Crete	126,000	137,000	110,000	408,000	331,000
Caucasus	1,146,000	1,058,000	871,000	849,000	772,000
Persia (exports)	1,186,000	1,329,000	500,000	463,000	....
Turkestan (exports)[2]			569,000	496,000	....
Total	6,173,000	6,526,000	4,923,000	5,104,000	3,428,000
Far East:					
China—					
Exports from Shanghai	11,448,000	13,095,000	14,198,000	12,709,000	8,201,000
Exports from Canton	5,814,000	3,814,000	4,982,000	6,063,000	4,288,000
Japan—					
Exports from Yokohama	19,698,000	20,657,000	23,957,000	26,720,000	21,495,000
British India—					
Exports from Bengal and Cashmere	507,000	494,000	260,000	249,000	66,000
Indo-China—					
Exports from Saigon, Haiphong, etc	....	35,000	33,000	26,000	22,000
Total	37,467,000	38,095,000	43,430,000	45,767,000	34,072,000
Grand total	54,002,000	54,167,000	59,336,000	60,230,000	48,214,000

[1] Prior to 1913 Turkey in Europe included the Vilayet of Saloniki, which now belongs to Greece.

[2] Including "Central Asia in 1912 and 1913."

TABLE 143.—*Total production of raw silk in countries mentioned in Table 142, 1900–1914.*

Year.	Production.	Year.	Production.	Year.	Production.
	Pounds.		*Pounds.*		*Pounds.*
1900	40,724,000	1905	41,513,000	1910	54,002,000
1901	42,393,000	1906	46,106,000	1911	54,167,000
1902	41,368,000	1907	48,634,000	1912	59,336,000
1903	39,981,000	1908	53,087,000	1913	60,230,000
1904	45,195,000	1909	54,035,000	1914 (preliminary)	48,214,000

WOOD PULP.

TABLE 144.—*Wood pulp: International trade, calendar years 1912–1914.*

[All kinds of pulp from wood have been taken for this item, but no pulp made from other fibrous substances. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Austria-Hungary	214,074	225,489	....	Sweden	2,091,135	2,225,232	....
Belgium	91,291	74,351	....	Switzerland	13,109	14,659	....
Canada	696,203	596,339	849,766	United States	28,379	39,552	24,674
Finland	304,751	278,907	....	Other countries	116,998	136,540	....
Germany	402,769	412,195	....				
Norway	1,529,091	1,558,473	1,390,451	Total	5,535,900	5,591,098	....
Russia	48,100	29,361	6,500				

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Argentina	43,970	70,531	51,441	Russia	59,165	58,770	62,800
Austria-Hungary	17,665	13,377	....	Spain	100,699	134,352	87,233
Belgium	322,398	291,900	....	Sweden	10,518	10,601	....
Denmark	118,266	130,654	....	Switzerland	23,967	26,602	....
France	927,456	1,025,025	....	United Kingdom	2,031,266	2,153,077	2,201,302
Germany	125,683	121,124	....	United States	1,079,580	1,082,914	1,351,130
Italy	204,554	212,241	193,943	Other countries	62,449	197,245	....
Japan	101,730	105,509	....				
Portugal	19,796	21,192	....	Total	5,249,162	5,655,114	....

FARM ANIMALS AND THEIR PRODUCTS.

TABLE 145.—*Livestock in principal and other countries.*

[Official estimates or census figures for latest data available with comparisons for earlier years. Date referring to census figures are in italics; dates referring to other figures are in Roman type.]

PRINCIPAL COUNTRIES.

Country.	Date.	Cattle.	Buffaloes.	Swine.	Sheep.	Goats.	Horses.	Mules.	Asses.
		Thousand.	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*
United States:									
On farms	Jan. 1, 1916	61,441	(1)	68,047	49,162	(1)	21,166	4,565	(1)
	Jan. 1, 1915	58,329	....	64,618	49,956	(1)	21,195	4,479	(1)
	Apr. 15, 1910	61,804	(1)	58,186	52,448	2,915	19,833	4,210	106
Not on farms	*Apr. 15, 1910*	1,879	....	1,288	391	115	3,183	270	17
Alaska	*Jan. 1, 1910*	1	[2] 22	(3)	(3)	(3)	2	(3)	(3)
Hawaii	*Apr. 15, 1910*	149	....	31	77	5	28	9	3
Porto Rico	*Apr. 15, 1910*	316	....	106	6	49	58	5	1
Total	1910	64,149	[2] 22	59,611	52,922	3,084	22,104	4,494	127
Algeria	Dec. 31, 1912	1,107	(4)	114	8,338	3,772	221	192	271
	Sept., 1910	1,128	(4)	109	9,042	3,990	230	192	276
	Sept., 1905	1,067	(4)	91	9,063	4,030	221	174	278
	Sept., 1900	993	(4)	82	6,724	3,563	202	147	263
	Sept., 1895	1,121	(4)	84	7,892	3,545	217	142	287
Argentina	Dec. 31, 1912	29,123	....	3,045	83,546	4,431	9,239	556	329
	May 1, 1908	29,124	....	1,404	67,384	3,947	7,538	465	285
	May, 1895	21,702	....	653	74,380	2,749	4,447	285	196
	1888	21,962	....	394	66,706	1,894	4,234	417	
Australia	Dec. 31, 1914	11,131	(4)	[5] 801	82,033	....	2,500	....	....
	Dec. 31, 1910	11,745	(4)	1,026	92,047	314	2,166	5	
	Dec. 31, 1905	8,528	(4)	1,015	74,541	....	1,675	....	....
	Dec. 31, 1900	8,640	(4)	950	70,603	....	1,610	....	....
	Dec. 31, 1895	11,767	(4)	823	90,690	....	1,680	....	....
	1890	10,300	(4)	891	97,881	....	1,522	....	....

[1] Estimated only for census years.

[2] Reindeer.

[3] Less than 500.

[4] No official statistics.

TABLE 145.—*Livestock in principal and other countries*—Continued.

PRINCIPAL COUNTRIES—Continued.

Country.	Date.	Cattle.	Buffaloes.	Swine.	Sheep.	Goats.	Horses.	Mules.	Asses.
		Thousand.	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*
Austria-Hungary:									
Austria	*Dec. 31, 1910*	9,160	1	6,432	2,428	1,257	1,803	21	53
	Dec. 31, 1900	9,511	(1)	4,683	2,621	1,020	1,716	20	46
	Dec. 31, 1890	8,644	(1)	3,550	3,187	1,036	1,548	17	41
	Dec. 31, 1880	8,584	(1)	2,722	3,841	1,007	1,463	50	
Hungary	Apr., 1913	6,045	162	6,825	6,560	269	2,005	1	16
	Feb. 28, *1911*	6,184		6,416	7,698	331	2,001	1	18
	Nov. 20, *1895*	5,830		6,447	7,527	237	1,997	22	
	1884	4,879		4,804	10,595	270	1,749	23	
Croatia-Slavonia	*Mar. 24, 1911*	1,135	....	1,164	850	96	350	3	
	Dec. 31, 1895	909	....	883	596	22	311	1	2
Bosnia-Herzegovina	*Oct. 10–Nov. 10. 1910*	1,309	1	527	2,499	1,393	222	(2)	6
	Apr. 22–May 22. 1895	1,416	1	662	3,231	1,447	231	1	5
Belgium	Dec. 31, 1913	1,849	....	1,412	(1)	(1)	267	(1)	(1)
	Dec. 31, 1910	1,880	....	1,494	185	218	317	11	
	Dec. 21, 1895	1,421	....	1,163	236	241	272	7	
	Dec. 31, 1880	1,383	....	646	365	(1)	272	(1)	(1)
Brazil	*1912–13*	30,705	....	18,399	10,653	10,049	7,289	3,208	
Bulgaria	*Dec. 31, 1910*	1,603	415	527	8,632	1,459	478	12	118
	Dec. 31, 1905	1,696	477	465	8,131	1,384	538	12	124
	Dec. 31, 1900	1,596	431	368	7,015	1,405	495	9	107
	Dec. 31, 1892	1,426	342	462	6,868	1,264	344	8	82
Canada	June 30, 1915	6,066	....	3,112	2,039	(1)	2,996	(1)	(1)
	June 1, 1911	6,533	....	3,610	2,175	(1)	2,596	(1)	(1)
	June 1, 1901	5,576	....	2,354	2,510	(1)	1,577	(1)	(1)
	1891	4,121	....	1,734	2,564	(1)	1,471	(1)	(1)
	1881	3,515	....	1,208	3,049	(1)	1,059	(1)	(1)
Denmark	May 15, 1915	2,417	(1)	1,919	533	(1)	526	(1)	(1)
	July 15, 1914	2,463	....	2,497	515	41	568	(1)	(1)
	July 15, 1909	2,254	....	1,468	727	40	535	(1)	(1)
	July 15, 1903	1,840	....	1,457	877	39	487	(1)	(1)
	July 15, 1898	1,745	....	1,168	1,074	32	419	(1)	(1)
Finland	1910	1,573	[3] 120	418	1,309	13	361	(1)	(1)
	1905	1,481	[3] 142	220	938	6	324	(1)	(1)
	1900	1,428	[3] 119	211	985	8	311	(1)	(1)
	1890	1,305	[3] 86	194	1,054	15	293	(1)	(1)
France	July 1, 1915	12,287	....	5,491	13,483	469	2,227	152	337
	Dec. 31, 1913	14,807	....	7,048	16,213	1,453	3,231	193	360
	Dec. 31, 1910	14,533	....	6,900	17,111	1,418	3,198	193	361
	Dec. 31, 1905	14,316	....	7,559	17,783	1,477	3,169	199	365
	Dec. 31, 1900	14,521	....	6,740	20,180	1,558	2,903	205	356
	Nov. 30, 1892	13,709	....	7,421	21 116	1,845	2,795	217	369
	1882	12,997	....	7,147	23,809	1,851	2,838	251	396
	1862	12,812	....	6,038	29,530	1,726	2,914	(1)	(1)
Germany	*Dec. 1, 1914*	21,817	(1)	25,339	5,452	3,534	[4] 3,441	(1)	(1)
	Dec. 2, 1912	20,182	(1)	21,924	5,803	3,410	4,523	13	
	Dec. 2, 1907	20,631	(1)	22,147	7,704	3,534	4,345	11	
	Dec. 1, 1904	19,332	(1)	18,921	7,907	3,330	4,267	(1)	(1)
	Dec. 1, 1900	18,940	(1)	16,807	9,693	3,267	4,195	8	
	Dec. 1, 1897	18,491	....	14,275	10,867	....	4,038	....	(1)
	Dec. 1, 1892	17,556	....	12,174	13,590	3,092	3,836	7	
	Jan. 10, 1883	15,787	....	9,206	19,190	2,641	3,523	10	(1)
Greece	1914	300	(1)	227	3,547	2,638	149	80	133
India:									
British	1913–14	[5]125,042	18,235	(1)	[6]23,092	[6]30,673	[6]1,643	[6]86	[6]1,501
	1909–10	[5]93,660	16,543	(1)	[6]22,897	[6]28,266	[6]1,514	[6]111	[6]1,337
	1904–05	[5]77,111	12,871	(1)	[6]17,562	[6]24,803	[6]1,278	[6]54	[6]1,177
	1899–00	[5]72,666	12,120	(1)	[6]17,805	[6]19,005	[6]1,308	[6]1,227	
	1894–95	[5]67,045	11,826	(1)	[6]17,260	[6]15,272	[6]1,134	[6]1,102	
Native States[7]	1913–14	[5]12,236	1,765	(1)	8,306		175	181	
	1909–10	[5]10,391	1,559	(1)	7,129		141	155	
	1904–05	[5]8,178	1,347	(1)	6,318		92	129	
	1900–01	[5]7,397	1,228	(1)	4,538		85	115	
Italy	*Mar. 10, 1908*	6,199	19	2,508	11,163	2,715	956	388	850
	Feb. 13, 1881	4,772	11	1,164	8,596	2,016	[8] 658	[8] 294	[8] 674
Japanese Empire:									
Japan	Dec. 31, 1913	1,389	(1)	310	3	89	1,582	(1)	(1)
	Dec. 31, 1910	1,384	(1)	279	3	92	1,565	(1)	(1)
	Dec. 31, 1905	1,168	(1)	228	4	72	1,368	(1)	(1)
	Dec. 31, 1900	1,261	(1)	181	2	60	1,542	(1)	(1)
Chosen (Korea)	1912	1,041	(1)	625	....	10	47	....	....
Formosa (Taiwan)	Dec. 31, 1913	428		1,322	129		187	....	....

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[1] No official statistics.
[2] Less than 500.
[3] Reindeer.
[4] Excluding army horses in 1914.
[5] Includes young buffaloes.
[6] Excludes Bengal.
[7] Figures incomplete.
[8] Census of Jan. 10, 1876.

TABLE 145.—*Livestock in principal and other countries*—Continued.

PRINCIPAL COUNTRIES—Continued.

Country.	Date.	Cattle.	Buffaloes.	Swine.	Sheep.	Goats.	Horses.	Mules.	Asses.
		Thousand.	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*
Mexico	*June 30, 1902*	5,142	....	616	3,424	4,206	859	334	288
Netherlands	May, 1915	2,390	....	1,487	....	....	....	....	....
	June, 1913	2,097	....	1,350	842	232	334	(1)	(1)
	May 20–June 20 1910	2,027	....	1,260	889	224	227	(1)	(1)
	Dec. 31, 1904	1,691	....	862	607	166	295	(1)	(1)
	Dec. 31, 1900	1,656	....	747	771	180	295	(1)	(1)
	Dec. 31, 1890	1,533	....	579	819	165	273	(1)	(1)
New Zealand	Apr. 30, 1915	....	....	....	24,901	(1)	....	....	....
	Apr. 1, 1911	2,020	....	349	....	6	404	(2)	(2)
	Apr. 30, 1911	....	....	....	23,996	....	....	....	....
	Apr. 30, 1905	....	....	....	19,131	....	....	....	....
	Oct., 1905	1,811	....	250	....	(1)	327	(2)	(2)
	Apr. 30, 1900	....	....	....	19,355	(1)	....	....	....
	Oct., 1900	1,257	....	251	....	(1)	266	(2)	(2)
	Apr., 1895	1,048	....	240	19,827	(1)	237	(2)	(2)
	1891	832	....	309	18,128	9	211	(2)	(2)
Norway	Sept. 30, 1910	1,134	....	334	1,398	288	168	(1)	(1)
	Sept. 30, 1907	1,089	[3] 143	307	1,391	296	164	(1)	(1)
	1900	950	[3] 109	165	999	215	173	(1)	(1)
	1890	1,006	[3] 170	121	1,418	272	151	(1)	(1)
Philippine Islands	Dec. 31, 1913	418	1,047	2,087	104	528	179	(1)	(1)
	Dec. 31, 1910	270	757	1,682	94	441	143	(1)	(1)
	Dec. 31, 1902	128	641	1,179	30	124	144	(1)	(1)
Portugal	*Oct., 1906*	703	....	1,111	3,073	1,034	88	58	144
	1870	625	....	971	2,977	937	87	51	138
Roumania	1911	2,667		1,021	5,269	187	825	4	
	1907	2,585		1,124	5,105	191	808	5	
	Dec., 1900	2,545	44	1,709	5,655	233	864	1	7
	1890	2,520		926	5,002	210	595	6	
	1884	2,376		886	4,655	245	533	2	
Russia, European (63 governments).	In summer, 1912.	34,547	[3] 464	11,945	42,736		23,860	(1)	(1)
	In summer, 1910.	37,369	[3] 462	11,584	45,629		24,149	(1)	(1)
	In summer, 1905.	39,454	[3] 437	12,276	53,438		24,323	(1)	(1)
Russia, Asiatic (27 governments).	In summer, 1912.	13,349	(1)	1,564	31,331		9,310	(1)	(1)
	In summer, 1910.	13,818	(1)	1,850	33,537		9,017	(1)	(1)
	In summer, 1909.	12,710	(1)	1,616	32,573		8,566	(1)	(1)
Serbia	*Dec. 31, 1910*	957	7	866	3,819	631	153	1	1
	Dec. 31, 1905	963	7	908	3,160	510	174	1	1
Spain	*1913*	2,879	(1)	2,710	16,441	3,394	542	948	849
	Dec. 31, 1910	2,369	(1)	2,424	15,117	3,216	520	886	868
	Dec. 31, 1906	2,497	(1)	2,080	13,481	2,440	440	802	744
	1891	2,218	(1)	1,928	13,359	2,534	397	768	754
Sweden	Dec. 31, 1913	2,721	....	968	988	71	596	(1)	(1)
	Dec. 31, 1910	2,748	[3] 273	957	1,004	69	587	(1)	(1)
	Dec. 31, 1905	2,550	[3] 226	830	1,074	67	555	(1)	(1)
	1900	2,583	[3] 232	806	1,261	80	533	(1)	(1)
	1890	2,399	[3] 288	645	1,351	87	487	(1)	(1)
Switzerland	*Apr. 21, 1911*	1,443	....	570	161	341	144	3	2
	Apr. 20, 1906	1,498	....	549	210	362	135	3	2
	Apr. 19, 1901	1,340	....	555	219	355	125	3	2
Turkey, European and Asiatic.	1912	(1)	(1)	73	27,095	20,269	(1)	(1)	(1)
	1910	(1)	(1)	175	27,662	21,283	(1)	(1)	(1)
	1905	(1)	(1)	196	23,614	16,411	(1)	(1)	(1)
Union of South Africa	Dec. 31, 1913	(1)	(1)	(1)	35,711	11,521	(1)	(1)	(1)
	May 7, 1911	5,797	(1)	1,082	30,657	11,763	719	94	337
	1904	3,500	(1)	679	16,323	9,771	450	135	142
United Kingdom	June 4, 1914	12,185	....	3,953	27,964	(1)	1,851	(1)	(1)
	June 4, 1910	11,765	....	3,561	31,165	(1)	2,095	(1)	(1)
	June 4, 1905	11,674	....	3,602	29,077	(1)	2,117	(1)	(1)
	June 4, 1900	11,455	....	3,664	31,055	(1)	2,000	(1)	(1)
	June 4, 1890	10,789	....	4,362	31,567	(1)	1,965	(1)	(1)
	June 4, 1880	9,871	....	2,863	30,240	(1)	1,930	(1)	(1)
Uruguay	*1908*	8,193	....	180	26,286	20	556	18	4
	1900	6,827	....	94	18,609	20	561	23	
	1860	3,632	....	6	1,990	5	518	8	

[1] No official statistics.

[2] Lot less than 500.

[3] Reindeer.

TABLE 145.—*Livestock in principal and other countries*—Continued.

OTHER COUNTRIES.

Country.	Date.	Cattle.	Buffaloes.	Swine.	Sheep.	Goats.	Horses.	Mules.	Asses.
		Thousand.	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*	*Thousand.*
Azores and Madeira Islands	1900	89	....	93	87	38	2	3	9
Basutoland	*1911*	437	....	(1)	1,369	(1)	88	(1)	(1)
Bechuanaland Protectorate	*1911*	324	....	(1)	358		[2] 4	....	....
Bolivia	1910	735	....	114	1,455	473	97	45	174
British East Africa[3]	1913	800	(1)	4	6,550	4,020	2	(1)	(1)
British Guiana	Mar. 31, 1914	81	....	14	18	14	1	2	6
Ceylon	1914	1,484		84	64	190	4	(1)	(1)
Chile	1914	1,969	....	221	4,602	299	458	38	33
Costa Rica	*1914*	336	....	64	(4)	1	52	2	(4)
Cuba	Dec. 31, 1912	2,830	....	(1)	(1)	(1)	561	41	2
Cyprus	1913	61	(1)	37	265	[5] 253	68	(1)	(1)
Dutch East Indies:									
Java and Madura	1913	4,786		(1)	(1)	(1)	274	(1)	(1)
Other	1905	449	447	(1)	(1)	(1)	119	(1)	(1)
Dutch Guiana	1912	7	....	4	(4)	3	(4)	(4)	1
Egypt	Aug.-Sept. 1913	637	633	(1)	(1)	(1)	48	23	682
Falkland Islands	1913	8	....	(4)	715	(1)	4	(1)	(1)
Faroe Islands	1914	4	....	(4)	112	(4)	1	(1)	(1)
Fiji	1913	49	....	2	3	15	[3] 7	(1)	(1)
Guam	1913	5		(1)	(1)	(1)	(1)	(1)	(1)
Gambia	1907	83	....	(1)	(1)	(1)	4	(1)	(1)
Guatemala	1913	557	....	188	514	11	64	33	
German East Africa	1913	3,994	....	6	6,440	25	(4)	(4)	25
German Southwest Africa	1913	206	....	8	555	517	16	14	
Honduras	1914	489	....	180	6	23	68	25	
Iceland	1912	26	....	....	601	1	46	(1)	(1)
Jamaica	1913	116	....	31	10	[5] 18	53	(1)	(1)
Luxemburg	*Dec. 1, 1913*	102	....	137	5	10	19	(1)	(1)
Madagascar	1914	....	[6] 6,878	643	168		2	(4)	(4)
Malta	1913	4	....	4	15	[5] 14	[2] 9	....	....
Mauritius	1913	41	....	17	2	37	2	1	(1)
Newfoundland	*1911*	39	....	27	98	17	14	(1)	(1)
Nicaragua	*1908*	252	....	12	(4)	1	28	6	1
Nyasaland Protectorate	1913	75		23	28	[5] 137	(4)	(1)	(1)
Panama	1905	65	....	28	(1)	3	17	2	(1)
Rhodesia	*1911*	500	....	2	300	[7] 602		20	
Salvador	1906	284	....	423	21	(1)	74	(1)	(1)
Siam	1913	2,360	2,141	749	....	....	82	(1)	(1)
Straits Settlements	1914	40	....	113	35	18	2	(1)	(1)
Swaziland	1913	74	....	9	170		1	(1)	(1)
Trinidad and Tobago	1914	13	....	9	2	6	5	5	(1)
Tunis	*July 31, 1915*	269	....	12	1,119	499	38	30	86
Uganda Protectorate[3]	1913	778	....	1	542		(3)	(4)	(4)
Venezuela	1912	2,004	....	1,618	177	1,667	191	89	313

[1] No official statistics.
[2] Includes mules and asses.
[3] Figures incomplete.
[4] Less than 500.
[5] In 1912.
[6] Zebus.
[7] Southern Rhodesia only.

TABLE 146.—*Hides and skins: International trade, calendar years 1912–1914.*

[This table gives the classification as found in the original returns, and the summary statements for "All countries" represent the total for each class only so far as it is disclosed in the original returns. The following kinds are included: Alligator, buffalo, calf, camel, cattle, deer, goat and kid, horse and colt, kangaroo, mule and ass, sheep and lamb, and all other kinds except furs, bird skins, sheepskins with wool on, skins of rabbits and hares, and tanned or partly tanned hides and skins. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country and classification.	1912	1913	1914 (prelim.).
Argentina:	*Pounds.*	*Pounds.*	*Pounds.*
Cattle, dried	69,469	46,779	31,984
Cattle, salted	173,524	144,963	140,118
Deer	12	1	1
Goat	5,082	4,387	3,193
Horse, dried	2,593	2,297	2,464
Horse, salted	373	310	610
Kid	840	995	406
Sheep and lamb	76,456	47,920	33,330
Austria-Hungary:			
Calf, dried	3,405	3,177	....
Calf, green	20,591	22,004	....
Cattle, dried	8,253	7,795	....
Cattle, green	34,593	27,371	....
Goat	2,160	2,014	....
Horse, dried	1,077	1,230	....
Horse, green	3,082	3,810	....
Kid	1,249	1,355	....
Lamb	3,953	3,138	....
Sheep	2,808	5,884	....
Unclassified	1,151	1,351	....
Belgium:			
Unclassified	123,926	116,608	....
Brazil:			
Cattle, dried	16,316	20,460	19,569
Cattle, green	63,611	56,866	49,730
Deer	227	387	284
Goat	5,158	5,062	3,786
Sheep	1,612	1,594	1,337
Unclassified	34	82	76
British India:			
Hides, unclassified	127,446	124,708	97,632
Goat	57,961	52,438	46,906
Skins, unclassified	4,879	6,971	5,709
British South Africa:			
Cattle	20,595	21,515	14,765
Goat	8,126	9,105	7,944
Sheep	29,103	32,319	30,403
Canada:			
Sheep	82	36	....
Hides and skins, not elsewhere specified [1]	48,000	60,000	53,000
China:			
Buffalo	43,920	66,405	55,616
Horse	509	1,518	1,542
Goat	18,362	22,176	17,368
Sheep	753	1,105	739
Chosen (Korea):			
Cattle	4,448	4,649	....
Cuba:			
Cattle	14,382	14,207	14,458
Unclassified	3	322	121
Denmark:			
Unclassified	24,403	20,814	....
Dutch East Indies:			
Unclassified	17,088	16,011	....
Egypt:			
Cattle and camel	7,003	7,029	6,883
Sheep and goat	2,598	2,946	2,211
France:			
Calf	32,153	34,164	....
Goat	4,215	5,411	....
Kid	2,863	2,601	....
Lamb	1,722	1,983	....
Sheep	15,992	13,030	....
Unclassified	79,097	82,304	....
Germany:	*Pounds.*	*Pounds.*	*Pounds.*
Calf	27,207	19,158	....
Cattle	111,671	104,653	....
Goat	2,884	2,912	....
Horse	14,959	14,594	....
Sheep	725	947	....
Unclassified	953	1,296	....
Italy:			
Cattle	35,203	48,094	33,742
Calf	5,405	7,446	5,379
Goat	954	1,191	598
Kid	939	989	644
Lamb	2,336	2,207	2,043
Sheep	1,017	782	517
Unclassified	897	1,316	1,067
Mexico:			
Alligator	132	[2] 132	....
Cattle	32,635	[2] 32,635	....
Deer	646	[2] 646	....
Goat	5,624	[2] 5,624	....
Sheep	2	[2] 2	....
Netherlands:			
Hides, dried	21,645	24,161	....
Hides, fresh	494	162	....
Hides, salted	42,510	42,399	....
Sheep	1,647	993	....
New Zealand:			
Hides, unclassified [3]	5,138	5,927	....
Sheep	20,402	20,671	....
Skins, unclassified	1,001	1,077	....
Peru:			
Cattle	5,879	6,930	4,826
Goat	822	872	944
Sheep	99	172	151
Russia:			
Hides, large	55,591	54,411	45,105
Hides, small	55,003	36,676	
Sheep and goat	26,752	23,471	15,384
Singapore:			
Hides, unclassified	7,163	[2] 7,163	....
Spain:			
Goat	1,801	1,923	1,019
Sheep	8,574	9,203	8,597
Unclassified	8,202	6,470	2,678
Sweden:			
Cattle, wet	23,149	21,359	....
Cattle, dry	395	366	....
Horse, wet	620	813	....
Horse, dry	2	1	....
Goat, kid, lamb, and sheep, wet	798	688	....
Goat, lamb, and sheep, dry	110	157	....
Unclassified, dry	6	8	....
Unclassified, wet	130	175	....
Switzerland:			
Hides, unclassified	15,897	15,673	....
Skins, unclassified	7,174	8,178	....
United Kingdom:			
Cattle	....	2,175	589
Hides, unclassified	3,140	22,213	17,583
Sheepskins	18,463	17,837	14,055

[1] Unofficial estimate.

[2] Year preceding.

[3] Number of pounds computed from stated number of hides and skins.

TABLE 146.—*Hides and skins: International trade, calendar years 1912–1914*—Contd.

EXPORTS—Continued.

Country and classification.	1912	1913	1914 (prelim.).
United States:	*Pounds.*	*Pounds.*	*Pounds.*
Calf	780	583	798
Cattle	20,514	14,454	15,310
Unclassified	7,085	7,119	5,476
Uruguay:			
Calf	[1] 429	[1] 429	290
Cattle, dried	[1] 18,560	[1] 18,560	6,599
Cattle, salted	[1] 29,485	[1] 29,485	2,520
Horse, dried	[1] 526	[1] 526	....
Horse, salted	[1] 54	[1] 54	....
Lamb	[1] 503	[1] 503	48
Sheep	22,825	[1] 17,597	9,568
Yearling, dried	[1] 3,112	[1] 3,112	....
Yearling, salted	[1] 100	[1] 100	....
Venezuela:			
Cattle	7,426	7,013	6,587
Deer	483	354	362
Goat	3,439	1,606	2,041
Other countries:			
Hides—			
Cattle and buffalo	102,516	106,630	....
Horse	645	361	....
Skins—			
Alligator	65	72	....
Calf	4,891	4,033	....
Deer	1,491	1,441	....
Other countries—Continued.			
Skins—Con.			
Goat and kid	18,534	18,246	....
Sheep and lamb	15,613	17,864	....
Sheep and goat, mixed	11,750	11,687	....
Unclassified	54,514	54,370	....
Total	2,116,701	2,024,754	....
All countries:			
Hides—			
Cattle and buffalo	846,687	810,393	....
Horse	24,440	25,514	....
Skins—			
Alligator	197	204	....
Calf	94,861	94,206	....
Deer	2,859	2,829	....
Goat and kid	141,013	138,907	....
Sheep and lamb	224,687	195,787	....
Sheep and goat, mixed	42,008	38,949	....
Unclassified	739,949	717,965	....
Total	2,116,701	2,024,754	....

IMPORTS.

Country and classification.	1912	1913	1914 (prelim.).
Austria-Hungary:			
Calf, dried	916	1,071	....
Calf, green	1,256	1,581	....
Cattle, dried	37,877	42,309	....
Cattle, green	35,006	37,440	....
Goat	1,214	1,500	....
Horse, dried	73	245	....
Horse, green	169	243	....
Kid	482	586	....
Lamb	10,299	10,124	....
Sheep	3,027	3,770	....
Unclassified	715	608	....
Belgium:			
Hides, green	186,116	197,072	....
British India:			
Cattle	21,174	14,401	15,301
Hides, unclassified	657	401	432
Skins, unclassified	5,453	5,336	4,823
Canada:			
Unclassified	64,300	44,667	50,782
Denmark:			
Unclassified	11,794	10,766	....
Finland:			
Hides, dried	4,919	6,200	....
Hides, green	5,336	6,374	....
Sheep	515	310	....
France:			
Calf	4,743	5,123	....
Goat	19,928	19,131	....
Kid	4,406	4,151	....
Lamb	360	334	....
Sheep	4,365	3,139	....
Unclassified	119,530	131,148	....
Germany:			
Calf, dried	13,232	10,641	....
Calf, green	63,464	75,846	....
Cattle, dried	88,521	120,063	....
Cattle, green	236,646	249,518	....
Goat, with hair on	21,767	24,426	....
Horse, dried	3,884	4,333	....
Germany—Contd.			
Horse, green	22,896	25,096	....
Sheep and lamb	2,689	2,582	....
Unclassified	2,069	2,239	....
Greece:			
Hides, unclassified	5,257	5,219	....
Italy:			
Calf	1,306	1,211	726
Cattle	46,517	47,615	35,965
Sheep	3,115	4,270	2,502
Goat	41	104	90
Kid	75	61	20
Lamb	675	537	363
Unclassified	83	184	162
Japan:			
Cattle	5,673	7,171	....
Deer	442	509	....
Netherlands:			
Hides, dried	35,791	41,384	....
Hides, fresh	13	25	....
Hides, salted	36,517	34,189	....
Sheep	4,492	4,812	....
Norway:			
Hides, dry	3,475	3,507	1,998
Hides, green	11,267	9,336	8,503
Hides, salted	447	608	....
Skins, unclassified	131	29	....
Portugal:			
Hides, dried	7,398	5,895	....
Hides, green	178	339	....
Roumania:			
Buffalo and cattle	6,900	[1] 6,900	....
Calf	57	[1] 57	....
Horse and swine	17	[1] 17	....
Sheep, lamb, and goat	812	[2] 812	....
Russia:			
Hides, dry	10,326	14,110	6,175
Hides, green	72,973	102,700	58,972
Goat and kid	3,239	3,399	719
Sheep	8,829	10,078	2,311

[1] Data for 1910.

[2] Year preceding.

TABLE 146.—*Hides and skins: International trade, calendar years 1912–1914*—Contd.

IMPORTS—Continued.

Country and classification.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*
Singapore:			
Hides, unclassified	10,965	[1] 10,965	....
Spain:			
Unclassified	21,556	18,236	11,977
Sweden:			
Cattle, wet	18,733	19,159	....
Cattle, dry	6,513	7,000	....
Horse, wet	109	26	....
Goat, kid, lamb, and sheep, wet	346	343	....
Goat, lamb, and sheep, dry	649	365	....
Unclassified, wet	15	....	....
Unclassified, dry	33	65	....
United Kingdom:			
Calf, dry	215	24	167
Calf, wet	2,893	666	1,046
Goat [2]	7,308	7,203	7,541
Hides, dry and wet	107,506	105,165	117,535
Sheep [2]	4,750	1,717	1,283
United States:			
Calf, dry	49,314	26,302	13,899
Calf, green or pickled	65,546	50,152	53,016
Cattle and buffalo, dry	107,234	77,625	83,730
Cattle, and buffalo, green, or pickled	207,695	158,655	236,773
Goat, dry	70,291	64,509	57,983
Goat, green or pickled	25,032	25,168	17,872
Horse, dry	8,742	9,726	5,810
Horse, green or pickled	5,959	7,425	4,806
United States—Con.			
Kangaroo	458	1,309	1,008
Sheep, dry	30,749	27,552	24,999
Sheep, green or pickled	37,482	40,654	40,945
Unclassified	6,603	8,803	15,353
Other countries:			
Hides—			
Cattle and buffalo	14,226	14,684	....
Horse	44	54	....
Skins—			
Deer	4	12	....
Goat and kid	549	556	....
Sheep and lamb	1,294	906	....
Sheep and goat, mixed	42	235	....
Unclassified	34,270	48,221	....
Total	2,112,969	2,101,334	....
All countries:			
Hides—			
Cattle and buffalo	832,715	802,540	....
Horse	41,893	47,165	....
Skins—			
Calf	202,942	172,674	....
Deer	446	521	....
Goat and kid	154,332	150,794	....
Kangaroo	458	1,309	....
Sheep and lamb	112,641	110,785	....
Sheep and goat, mixed	1,849	1,755	....
Unclassified	765,693	813,791	....
Total	2,112,969	2,101,334	....

[1] Year preceding.

[2] Number of pounds computed from stated number of skins.

HORSES AND MULES.

TABLE 147.—*Horses and mules: Number and value on farms in the United States, 1867–1916.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of numbers are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available. It should also be observed that the census of 1910, giving numbers as of Apr. 15, is not strictly comparable with former censuses, which related to numbers June 1.

Jan. 1—	Horses.			Mules.		
	Number.	Price per head Jan. 1.	Farm value Jan. 1.	Number.	Price per head Jan. 1.	Farm value Jan. 1.
1867	5,401,000	$59.05	$318,924,000	822,000	$66.94	$55,048,000
1868	5,757,000	54.27	312,416,000	856,000	56.04	47,954,000
1869	6,333,000	62.57	396,222,000	922,000	79.23	73,027,000
1870	8,249,000	67.43	556,251,000	1,180,000	90.42	106,654,000
1870, census, June 1	*7,145,370*			*1,125,415*		
1871	8,702,000	71.14	619,039,000	1,242,000	91.98	114,272,000
1872	8,991,000	67.41	606,111,000	1,276,000	87.14	111,222,000
1873	9,222,000	66.39	612,273,000	1,310,000	85.15	111,546,000
1874	9,334,000	65.15	608,073,000	1,339,000	81.35	108,953,000
1875	9,504,000	61.10	580,708,000	1,394,000	71.89	100,197,000
1876	9,735,000	57.29	557,747,000	1,414,000	66.46	94,001,000
1877	10,155,000	55.83	567,017,000	1,444,000	64.07	92,482,000
1878	10,330,000	56.63	584,999,000	1,638,000	62.03	101,579,000
1879	10,939,000	52.36	572,712,000	1,713,000	56.00	95,942,000
1880	11,202,000	54.75	613,297,000	1,730,000	61.26	105,948,000
1880, census, June 1	*10,357,488*			*1,812,808*		
1881	11,430,000	58.44	667,954,000	1,721,000	69.79	120,096,000
1882	10,522,000	58.53	615,825,000	1,835,000	71.35	130,945,000
1883	10,838,000	70.59	765,041,000	1,871,000	79.49	148,732,000
1884	11,170,000	74.64	833,734,000	1,914,000	84.22	161,215,000
1885	11,565,000	73.70	852,283,000	1,973,000	82.38	162,497,000
1886	12,078,000	71.27	860,823,000	2,053,000	79.60	163,381,000
1887	12,497,000	72.15	901,686,000	2,117,000	78.91	167,058,000
1888	13,173,000	71.82	946,096,000	2,192,000	79.78	174,854,000
1889	13,663,000	71.89	982,195,000	2,258,000	79.49	179,444,000
1890	14,214,000	68.84	978,517,000	2,331,000	78.25	182,394,000
1890, census, June 1	*14,969,469*			*2,295,532*		
1891	14,057,000	67.00	941,823,000	2,297,000	77.88	178,847,000
1892	15,498,000	65.01	1,007,594,000	2,315,000	75.55	174,882,000
1893	16,207,000	61.22	992,225,000	2,331,000	70.68	164,764,000
1894	16,081,000	47.83	769,225,000	2,352,000	62.17	146,233,000
1895	15,893,000	36.29	576,731,000	2,333,000	47.55	110,928,000
1896	15,124,000	33.07	500,140,000	2,279,000	45.29	103,204,000
1897	14,365,000	31.51	452,649,000	2,216,000	41.66	92,302,000
1898	13,961,000	34.26	478,362,000	2,190,000	43.88	96,110,000
1899	13,665,000	37.40	511,075,000	2,134,000	44.96	95,963,000
1900	13,538,000	44.61	603,969,000	2,086,000	53.55	111,717,000
1900, census, June 1	*18,267,020*			*3,264,615*		
1901 [1]	16,745,000	52.86	885,200,000	2,864,000	63.97	183,232,000
1902	16,531,000	58.61	968,935,000	2,757,000	67.61	186,412,000
1903	16,557,000	62.25	1,030,706,000	2,728,000	72.49	197,753,000
1904	16,736,000	67.93	1,136,940,000	2,758,000	78.88	217,533,000
1905	17,058,000	70.37	1,200,310,000	2,889,000	87.18	251,840,000
1906	18,719,000	80.72	1,510,890,000	3,404,000	98.31	334,681,000
1907	19,747,000	93.51	1,846,578,000	3,817,000	112.16	428,064,000
1908	19,992,000	93.41	1,867,530,000	3,869,000	107.76	416,939,000
1909	20,640,000	95.64	1,974,052,000	4,053,000	107.84	437,082,000
1910	21,040,000			4,123,000		
1910, census, Apr. 15	*19,833,113*	108.03	2,142,524,000	*4,209,769*	120.20	506,049,000
1911 [1]	20,277,000	111.46	2,259,981,000	4,323,000	125.92	544,359,000
1912	20,509,000	105.94	2,172,694,000	4,362,000	120.51	525,657,000
1913	20,567,000	110.77	2,278,222,000	4,386,000	124.31	545,245,000
1914	20,962,000	109.32	2,291,638,000	4,449,000	123.85	551,017,000
1915	21,195,000	103.33	2,190,102,000	4,479,000	112.36	503,271,000
1916	21,166,000	101.60	2,150,468,000	4,565,000	113.87	519,824,000

[1] Estimates of numbers revised, based on census data.

HORSES AND MULES—Continued.

Table 148.—*Horses and mules: Number and value on farms Jan. 1, 1915 and 1916, by States.*

State.	Horses.						Mules.					
	Number (thousands) Jan. 1—		Average price per head, Jan. 1—		Farm value (thousands of dollars) Jan. 1—		Number (thousands) Jan. 1—		Average price per head, Jan. 1—		Farm value (thousands of dollars) Jan. 1—	
	1916	1915	1916	1915	1916	1915	1916	1915	1916	1915	1916	1915
Me.	112	113	$142.00	$146.00	$15,904	$16,498	.....	....	....	....	....	....
N. H.	47	47	132.00	127.00	6,204	5,969	.....	....	....	....	....	....
Vt.	89	88	130.00	131.00	11,570	11,528	.....	....	....	....	....	....
Mass.	63	64	146.00	155.00	9,198	9,920	.....	....	....	....	....	....
R. I.	9	10	151.00	146.00	1,359	1,460	.....	....	....	....	....	....
Conn.	46	47	146.00	148.00	6,716	6,956	.....	....	....	....	....	....
N. Y.	609	615	139.00	142.00	84,651	87,330	4	4	$148.00	$152.00	$592	$608
N. J.	92	92	144.00	146.00	13,248	13,432	4	4	164.00	169.00	656	676
Pa.	602	596	124.00	134.00	74,648	79,861	47	46	137.00	142.00	6,439	6,532
Del.	36	36	95.00	100.00	3,420	3,600	6	6	114.00	121.00	684	726
Md.	169	167	105.00	113.00	17,745	18,871	25	25	121.00	138.00	3,025	3,450
Va.	361	354	99.00	109.00	35,739	38,586	64	62	120.00	128.00	7,680	7,936
W. Va.	194	192	108.00	114.00	20,952	21,888	12	12	116.00	119.00	1,392	1,428
N. C.	182	182	122.00	130.00	22,204	23,660	196	194	140.00	151.00	27,440	29,294
S. C.	84	83	135.00	131.00	11,340	10,873	171	166	161.00	149.00	27,531	24,734
Ga.	125	125	126.00	119.00	15,750	14,875	315	309	156.00	140.00	49,140	43,260
Fla.	59	57	112.00	121.00	6,608	6,897	29	28	154.00	163.00	4,466	4,564
Ohio.	901	910	116.00	128.00	104,516	116,480	26	24	119.00	127.00	3,094	3,048
Ind.	854	54	104.00	114.00	88,816	97,356	95	86	111.00	117.00	10,545	10,062
Ill.	1,452	1,467	103.00	105.00	149,556	154,035	152	145	111.00	110.00	16,872	15,950
Mich.	680	673	128.00	132.00	87,040	88,836	4	4	133.00	131.00	532	524
Wis.	712	705	124.00	131.00	88,288	92,355	3	3	120.00	127.00	360	381
Minn.	872	872	109.00	116.00	95,048	101,152	6	6	116.00	124.00	696	744
Iowa.	1,584	1,600	105.00	105.00	166,320	168.000	61	58	110.00	111.00	6,710	6,438
Mo.	1,084	1,095	90.00	88.00	97,560	96,360	329	329	99.00	98.00	32,571	32,242
N. Dak.	801	785	110.00	110.00	88,110	86,350	9	8	124.00	122.00	1,116	976
S. Dak.	759	759	93.00	89.00	70,587	67,551	15	14	109.00	106.00	1,635	1,484
Nebr.	1,028	1,038	94.00	92.00	96,632	95,496	98	85	104.00	105.00	10,192	8,925
Kans.	1,109	1,132	97.00	93.00	107,573	105,276	245	233	105.00	102.00	25,725	23,766
Ky.	434	443	90.00	95.00	39,060	42,085	229	231	102.00	106.00	23,358	24,486
Tenn.	349	353	101.00	100.00	35,249	35,300	272	275	113.00	110.00	30,736	30,250
Ala.	150	149	101.00	96.00	15,150	14,304	281	281	121.00	114.00	34,001	32,034
Miss.	243	241	88.00	86.00	21,384	20,726	292	292	110.00	108.00	32,120	31,536
La.	193	191	82.00	83.00	15,826	15,853	132	132	121.00	125.00	15,972	16,500
Tex.	1,180	1,192	78.00	78.00	92,040	92,976	768	753	100.00	100.00	76,800	75,300
Okla.	743	758	85.00	81.00	63,155	61,398	282	269	98.00	96.00	27,636	25,824
Ark.	270	276	82.00	76.00	22,140	20,976	240	240	102.00	96.00	24,480	23,040
Mont.	430	391	86.00	86.00	36,980	33,626	4	4	98.00	98.00	392	392
Wyo.	180	176	82.00	79.00	14,760	13,904	2	2	99.00	101.00	198	202
Colo.	361	347	90.00	85.00	32,490	29,495	19	18	101.00	100.00	1,919	1,800
N. M.	234	217	58.00	55.00	13,572	11,935	17	16	85.00	81.00	1,445	1,296
Ariz.	124	118	71.00	70.00	8,804	8,260	7	7	99.00	104.00	693	728
Utah.	146	146	86.00	86.00	12,556	12,556	2	2	78.00	79.00	156	158
Nev.	77	78	75.00	69.00	5,775	5,382	3	3	75.00	79.00	225	237
Idaho.	241	243	90.00	92.00	21,690	22,356	4	4	95.00	85.00	380	340
Wash.	308	311	94.00	96.00	28,952	29,856	15	15	106.00	104.00	1,590	1,560
Oreg.	295	304	89.00	90.00	26,255	27,360	10	10	93.00	96.00	930	960
Cal.	493	503	96.00	100.00	47,328	50,300	70	74	110.00	120.00	7,700	8,880
U. S.	21,166	21,195	101.60	103.33	2,150,468	2,190,102	4,565	4,479	113.87	112.36	519,824	503,271

HORSES AND MULES—Continued.

TABLE 149.—*Prices of horses and mules at National Stock Yards, National Stock Yards, Illinois.*

Year and month.	Range of prices.	
	Horses, grade, good to choice draft.	Mules, grade, 16 to 16½ hands.
1900	$140–$190	$90–$150
1901	150– 175	110– 165
1902	160– 185	120– 160
1903	160– 185	120– 175
1904	175– 200	135– 200
1905	175– 225	120– 210
1906	175– 225	125– 215
1907	175– 225	125– 250
1908	175– 250	125– 200
1909	140– 225	130– 225
1910	165– 240	150– 275
1911	165– 235	150– 275
1912	165– 240	160– 285
1913	200– 250	160– 280
1914	175– 220	120– 250
1915.		
January	$185–$220	$125–$250
February	185– 220	125– 250
March	185– 225	125– 250
April	185– 225	120– 265
May	175– 220	120– 265
June	175– 220	125– 265
July	175– 220	125– 265
August	180– 220	135– 265
September	185– 225	135– 265
October	185– 225	135– 275
November	185– 225	135– 275
December, first week	175– 220	135– 270

HORSES AND MULES—Continued.

TABLE 150.—*Average price per head for horses on the Chicago horse market, 1901–1915.*

Date.	Drafters.	Carriage teams.	Drivers.	General.	Bussers, trammers.	Saddlers.	Southern chunks.
1901	$157.00	$400.00	$137.00	$102.00	$121.00	$147.00	$52.00
1902	166.00	450.00	145.00	117.00	135.00	151.00	57.00
1903	171.00	455.00	150.00	122.00	140.00	156.00	62.00
1904	177.00	475.00	150.00	140.00	140.00	160.00	64.00
1905	186.00	486.00	156.00	132.00	145.00	172.00	70.00
1906	188.00	486.00	158.00	154.00	147.00	174.00	72.50
1907	194.00	482.00	165.00	137.00	152.00	172.00	77.50
1908	180.00	450.00	156.00	129.00	138.00	164.00	69.00
1909	194.00	482.00	165.00	137.00	152.00	172.00	77.00
1910	200.00	473.00	172.00	144.00	161.00	177.00	87.00
1911	205.00	483.00	182.00	155.00	170.00	190.00	92.00
1912	210.00	473.00	177.00	160.00	175.00	195.00	97.00
1913	213.00	493.00	174.00	165.00	176.00	189.00	98.00
1914	208.00	483.00	169.00	160.00	171.00	184.00	93.00
1915.							
January	205.00	440.00	165.00	150.00	160.00	180.00	90.00
February	215.00	490.00	170.00	155.00	170.00	190.00	95.00
March	220.00	510.00	175.00	160.00	175.00	195.00	100.00
April	220.00	510.00	175.00	160.00	175.00	195.00	100.00
May	215.00	510.00	170.00	155.00	170.00	190.00	95.00
June	210.00	510.00	165.00	150.00	165.00	185.00	90.00
July	205.00	480.00	165.00	145.00	165.00	180.00	85.00
August	195.00	470.00	160.00	140.00	160.00	175.00	80.00
September	190.00	455.00	155.00	145.00	170.00	170.00	75.00
October	190.00	440.00	155.00	145.00	165.00	165.00	75.00
November	195.00	440.00	155.00	140.00	160.00	165.00	80.00
December	190.00	440.00	155.00	140.00	160.00	165.00	90.00
Year	205.00	473.00	164.00	155.00	166.00	179.00	88.00

TABLE 151.—*Number of horses and mules received at principal live-stock markets.*

[From reports of stockyards companies.]

Year and month.	Horses.	Horses and mules.		
	Chicago.	St. Louis (National Stock Yards, Ill.).	Kansas City.	Omaha.
1900	99,010	144,921	103,308	59,645
1901	109,353	128,880	96,657	36,391
1902	102,100	109,295	76,844	42,079
1903	100,603	128,615	67,274	52,829
1904	105,949	181,341	67,562	46,845
1905	127,250	178,257	65,582	45,422
1906	126,979	166,393	69,629	42,269
1807	102,055	117,379	62,341	44,020
1908	92,138	109,393	56,335	39,998
1909	91,411	123,651	67,796	31,711
1910	83,439	131,887	69,628	29,734
1911	104,545	169,722	84,861	31,771
1912	92,977	161,730	73,445	32,520
1913	90,615	156,692	82,110	31,580
1914	106,282	149,982	87,155	30,688
1915.				
January	11,213	25,422	16,671	4,981
February	12,616	30,948	11,800	4,233
March	14,930	28,434	12,820	4,420
April	10,895	23,276	13,748	3,001
May	13,831	23,728	11,425	2,355
June	14,978	32,388	4,917	3,498
July	11,726	20,266	4,425	3,758
August	14,931	15,616	3,030	2,655
September	18,004	17,298	3,990	4,081
October	17,742	25,765	7,424	4,557
October	14,339	17,066	6,714	3,518
November	10,048	16,972	5,189	622
Total, 1915	165,253	277,179	102,153	41,679

HORSES AND MULES—Continued.

TABLE 152.—*Horses and mules: Imports, exports, and prices, 1893–1915.*

Year ending June 30—	Imports of horses.			Exports of horses.			Exports of mules.		
	Number.	Value.	Average import price.	Number.	Value.	Average export. price.	Number.	Value.	Average export price.
1893	15,451	$2,388,267	$154.57	2,967	$718,607	$242.20	1,634	$210,278	$128.69
1894	6,166	1,319,572	214.01	5,246	1,108,995	211.40	2,063	240,961	116.80
1895	13,098	1,055,191	80.56	13,984	2,209,298	157.99	2,515	186,452	74.14
1896	9,991	662,591	66.32	25,126	3,530,703	140.52	5,918	406,161	68.63
1897	6,998	464,808	66.42	39,532	4,769,265	120.64	7,473	545,331	72.97
1898	3,085	414,899	134.49	51,150	6,176,569	120.75	8,098	664,789	82.09
1899	3,042	551,050	181.15	45,778	5,444,342	118.93	6,755	516,908	76.52
1900	3,102	596,592	192.32	64,722	7,612,616	117.62	43,369	3,919,478	90.38
1901	3,785	985,738	260.43	82,250	8,873,845	107.89	34,405	3,210,267	93.31
1902	4,832	1,577,234	326.41	103,020	10,048,046	97.53	27,586	2,692,298	97.60
1903	4,999	1,536,296	307.32	34,007	3,152,159	92.69	4,294	521,725	121.47
1904	4,726	1,460,287	308.99	42,001	3,189,100	75.93	3,658	412,971	112.90
1905	5,180	1,591,083	307.16	34,822	3,175,259	91.19	5,826	645,464	110.79
1906	6,021	1,716,675	285.11	40,087	4,365,981	108.91	7,167	989,639	138.08
1907	6,080	1,978,105	325.35	33,882	4,359,957	131.99	6,781	850,901	125.48
1908	5,487	1,604,392	292.40	19,000	2,612,587	137.50	6,609	990,667	149.90
1909	7,084	2,007,276	283.35	21,616	3,386,617	156.67	3,432	472,017	137.53
1910	11,620	3,296,022	283.65	28,910	4,081,157	141.17	4,512	614,094	136.18
1911	9,593	2,692,074	280.63	25,145	3,845,253	152.92	6,585	1,070,051	162.50
1912	6,607	1,923,025	291.06	34,828	4,764,815	136.81	4,901	732,095	149.38
1913	10,008	2,125,875	212.42	28,707	3,960,102	137.95	4,744	733,795	154.68
1914	33,019	2,605,029	78.89	22,776	3,388,819	148.79	4,883	690,974	141.51
1915	12,652	977,380	77.25	289,340	64,046,534	221.35	65,788	12,726,143	193.44

CATTLE.

TABLE 153.—*Cattle (live): Imports, exports, and prices, 1893–1915.*

Year ending June 30—	Imports.			Exports.		
	Number.	Value.	Average import price.	Number.	Value.	Average export price.
1893	3,293	$45,682	$13.87	287,094	$26,032,428	$90.68
1894	1,592	18,704	11.75	359,278	33,461,922	93.14
1895	149,781	765,853	5.11	331,722	30,603,796	92.26
1896	217,826	1,509,856	6.93	372,461	34,560,672	92.79
1897	328,977	2,589,857	7.87	392,190	36,357,451	92.70
1898	291,589	2,913,223	9.99	439,255	37,827,500	86.12
1899	199,752	2,320,362	11.62	389,490	30,516,833	78.35
1900	181,006	2,257,694	12.47	397,286	30,635,153	77.11
1901	146,022	1,931,433	13.23	459,218	37,566,980	81.81
1902	96,027	1,608,722	16.75	392,884	29,902,212	76.11
1903	66,175	1,161,548	17.55	402,178	29,848,936	74.22
1904	16,056	310,737	19.35	593,409	42,256,291	71.21
1905	27,855	458,572	16.46	567,806	40,598,048	71.50
1906	29,019	548,430	18.90	584,239	42,081,170	72.03
1907	32,402	565,122	17.44	423,051	34,577,392	81.73
1908	92,356	1,507,310	16.32	349,210	29,339,134	84.02
1909	139,184	1,999,422	14.37	207,542	18,046,976	86.96
1910	195,938	2,999,824	15.37	139,430	12,200,154	87.50
1911	182,923	2,953,077	16.14	150,100	13,163,920	87.70
1912	318,372	4,805,574	15.09	105,506	8,870,075	84.07
1913	421,649	6,640,668	15.75	24,714	1,177,199	47.63
1914	868,368	18,696,718	21.53	18,376	647,288	35.22
1915	538,167	17,513,175	32.54	5,484	702,847	128.16

CATTLE—Continued.

TABLE 154.—*Cattle: Number and value on farms in the United States, 1867–1916.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of numbers are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available. It should also be observed that the census of 1910, giving numbers as of Apr. 15, is not strictly comparable with former censuses, which related to numbers June 1.

Jan. 1—	Milch cows.			Other cattle.		
	Number.	Price per head Jan. 1.	Farm value Jan. 1.	Number.	Price per head Jan. 1.	Farm value Jan. 1.
1867	8,349,000	$28.74	$239,947,000	11,731,000	$15.79	$185,254,000
1868	8,692,000	26.56	230,817,000	11,942,000	15.06	179,888,000
1869	9,248,000	29.15	269,610,000	12,185,000	18.73	228,183,000
1870	10,096,000	32.70	330,175,000	15,388,000	18.87	290,401,000
1870, census June 1	*8,935,332*			*13,566,005*		
1871	10,023,000	33.89	339,701,000	16,212,000	20.78	336,860,000
1872	10,304,000	29.45	303,438,000	16,390,000	18.12	296,932,000
1873	10,576,000	26.72	282,559,000	16,414,000	18.06	296,448,000
1874	10,705,000	25.63	274,326,000	16,218,000	17.55	284,706,000
1875	10,907,000	25.74	280,701,000	16,313,000	16.91	275,872,000
1876	11,085,000	25.61	283,879,000	16,785,000	17.00	285,387,000
1877	11,261,000	25.47	286,778,000	17,956,000	15.99	287,156,000
1878	11,300,000	25.74	290,898,000	19,223,000	16.72	321,346,000
1879	11,826,000	21.71	256,721,000	21,408,000	15.38	329,254,000
1880	12,027,000	23.27	279,899,000	21,231,000	16.10	341,761,000
1880, census June 1	*12,443,120*			*22,488,550*		
1881	12,369,000	23.95	296,277,000	20,939,000	17.33	362,862,000
1882	12,612,000	25.89	326,489,000	23,280,000	19.89	463,070,000
1883	13,126,000	30.21	396,575,000	28,046,000	21.81	611,549,000
1884	13,501,000	31.37	423,487,000	29,046,000	23.52	683,229,000
1885	13,905,000	29.70	412,903,000	29,867,000	23.25	694,383,000
1886	14,235,000	27.40	389,986,000	31,275,000	21.17	661,956,000
1887	14,522,000	26.08	378,790,000	33,512,000	19.79	663,138,000
1888	14,856,000	24.65	366,252,000	34,378,000	17.79	611,751,000
1889	15,299,000	23.94	366,226,000	35,032,000	17.05	597,237,000
1890	15,953,000	22.14	353,152,000	36,849,000	15.21	560,625,000
1890, census June 1	*16,511,950*			*33,734,128*		
1891	16,020,000	21.62	346,398,000	36,876,000	14.76	544,128,000
1892	16,416,000	21.40	351,378,000	37,651,000	15.16	570,749,000
1893	16,424,000	21.75	357,300,000	35,954,000	15.24	547,882,000
1894	16,487,000	21.77	358,999,000	36,608,000	14.66	536,790,000
1895	16,505,000	21.97	362,602,000	34,364,000	14.06	482,999,000
1896	16,138,000	22.55	363,956,000	32,085,000	15.86	508,928,000
1897	15,942,000	23.16	369,240,000	30,508,000	16.65	507,929,000
1898	15,841,000	27.45	434,814,000	29,264,000	20.92	612,297,000
1899	15,990,000	29.66	474,234,000	27,994,000	22.79	637,931,000
1900	16,292,000	31.60	514,812,000	27,610,000	24.97	689,486,000
1900, census June 1	*17,135,633*			*50,083,777*		
1901[1]	16,834,000	30.00	505,093,000	45,500,000	19.93	906,644,000
1902	16,697,000	29.23	488,130,000	44,728,000	18.76	839,126,000
1903	17,105,000	30.21	516,712,000	44,659,000	18.45	824,055,000
1904	17,420,000	29.21	508,841,000	43,629,000	16.32	712,178,000
1905	17,572,000	27.44	482,272,000	43,669,000	15.15	661,571,000
1906	19,794,000	29.44	582,789,000	47,068,000	15.85	746,172,000
1907	20,968,000	31.00	645,497,000	51,566,000	17.10	881,557,000
1908	21,194,000	30.67	650,057,000	50,073,000	16.89	845,938,000
1909	21,720,000	32.36	702,945,000	49,379,000	17.49	863,754,000
1910	21,801,000			47,279,000		
1910, census Apr. 15	*20,625,432*	35.29	727,802,000	*41,178,434*	19.07	785,261,000
1911[1]	20,823,000	39.97	832,209,000	39,679,000	20.54	815,184,000
1912	20,699,000	39.39	815,414,000	37,260,000	21.20	790,064,000
1913	20,497,000	45.02	922,783,000	36,030,000	26.36	949,645,000
1914	20,737,000	53.94	1,118,487,000	35,855,000	31.13	1,116,333,000
1915	21,262,000	55.33	1,176,338,000	37,067,000	33.38	1,237,376,000
1916	21,988,000	53.90	1,185,119,000	39,453,000	33.49	1,321,135,000

[1] Estimates of numbers revised, based on census data.

CATTLE—Continued.

TABLE 155.—*Cattle: Number and value on farms Jan. 1, 1915 and 1916, by States.*

State.	Milch cows.						Other cattle.					
	Number (thousands) Jan. 1—		Average price per head Jan. 1—		Farm value (thousands of dollars) Jan. 1—		Number (thousands) Jan. 1—		Average price per head Jan. 1—		Farm value (thousands of dollars) Jan. 1—	
	1916	1915	1916	1915	1916	1915	1916	1915	1916	1915	1916	1915
Maine	159	157	$50.00	$54.00	$7,950	$8,478	104	101	$24.60	$26.10	$2,558	$2,636
New Hampshire	97	95	60.00	60.00	5,820	5,700	65	64	28.50	28.00	1,852	1,792
Vermont	273	268	54.00	52.00	14,742	13,936	170	167	23.30	23.10	3,961	3,858
Massachusetts	155	157	68.00	66.00	10,540	10,362	85	83	25.40	25.10	2,159	2,083
Rhode Island	22	23	77.00	71.00	1,694	1,633	10	11	28.30	26.80	283	295
Connecticut	119	118	68.30	66.70	8,128	7,871	72	71	29.70	29.80	2,138	2,116
New York	1,539	1,509	57.20	61.00	88,031	92,049	939	894	26.90	28.20	25,259	25,211
New Jersey	152	146	71.00	68.00	10,792	9,928	73	70	32.50	31.50	2,372	2,205
Pennsylvania	971	943	56.50	59.50	54,862	56,108	657	638	27.10	29.30	17,805	18,693
Delaware	42	41	53.00	56.50	2,226	2,316	21	20	28.00	31.20	588	624
Maryland	181	177	52.00	54.00	9,412	9,558	125	121	28.80	29.50	3,600	3,570
Virginia	359	349	41.50	43.50	14,898	15,182	472	450	28.20	28.60	13,310	12,870
West Virginia	241	234	50.00	51.00	12,050	11,934	362	338	36.30	36.30	13,141	12,269
North Carolina	321	315	34.00	36.50	10,914	11,498	387	369	16.80	17.00	6,502	6,273
South Carolina	189	185	34.50	33.00	6,520	6,105	215	211	15.40	14.60	3,311	3,081
Georgia	414	406	31.50	32.00	13,041	12,992	686	660	13.50	12.80	9,261	8,448
Florida	136	133	40.00	42.50	5,440	5,652	772	735	14.90	14.50	11,503	10,658
Ohio	922	895	56.00	60.00	51,632	53,700	872	838	33.80	34.60	29,474	28,995
Indiana	672	646	54.50	55.00	36,624	35,530	728	693	36.80	35.20	26,790	24,394
Illinois	1,047	1,007	60.20	59.50	63,029	59,916	1,239	1,180	38.50	37.80	47,702	44,604
Michigan	847	814	56.20	60.50	47,601	49,247	735	707	27.30	29.80	20,066	21,069
Wisconsin	1,675	1,626	55.00	59.50	92,125	96,747	1,313	1,216	25.20	27.70	33,088	33,683
Minnesota	1,210	1,186	51.00	53.50	61,710	63,451	1,232	1,208	22.40	24.70	27,597	29,838
Iowa	1,391	1,377	58.50	57.00	81,374	78,489	2,737	2,683	38.30	37.50	104,827	100,612
Missouri	837	797	54.40	54.50	45,533	43,436	1,555	1,414	38.90	37.90	60,490	53,591
North Dakota	373	339	57.00	61.50	21,261	20,848	577	515	35.00	36.00	20,195	18,540
South Dakota	485	453	59.00	59.50	28,615	26,954	1,064	967	38.40	39.50	40,858	38,196
Nebraska	650	625	60.00	62.50	39,000	39,062	2,237	2,034	40.50	40.80	90,598	82,987
Kansas	762	726	60.60	63.50	46,177	46,101	1,945	1,768	41.70	42.50	81,106	75,140
Kentucky	406	390	44.80	45.50	18,189	17,745	570	543	30.80	30.40	17,556	16,507
Tennessee	366	355	39.50	41.00	14,457	14,555	518	503	22.60	22.40	11,707	11,267
Alabama	396	384	32.00	31.50	12,672	12,096	534	504	13.00	12.60	6,942	6,350
Mississippi	447	434	33.50	35.00	14,974	15,190	535	514	14.10	14.30	7,544	7,350
Louisiana	271	268	37.00	36.00	10,027	9,648	475	448	16.80	16.40	7,980	7,347
Texas	1,119	1,086	51.00	47.50	57,069	51,585	5,428	5,121	33.10	31.70	179,667	162,336
Oklahoma	519	494	55.00	52.00	28,545	25,688	1,186	1,119	37.90	35.40	44,949	39,613
Arkansas	402	387	38.00	37.00	15,276	14,319	523	484	17.00	17.20	8,891	8,325
Montana	129	114	77.50	75.00	9,998	8,550	894	791	50.40	49.00	45,058	38,759
Wyoming	50	46	80.50	78.00	4,025	3,588	703	628	52.70	53.30	37,048	33,472
Colorado	219	205	72.00	68.00	15,768	13,940	1,096	996	44.80	43.70	49,101	43,525
New Mexico	76	68	67.00	61.50	5,092	4,182	1,090	991	40.10	35.50	43,709	35,180
Arizona	53	44	78.00	74.00	4,134	3,256	838	791	34.20	34.50	28,660	27,290
Utah	96	92	62.00	62.00	5,952	5,704	408	381	35.80	35.80	14,606	13,640
Nevada	25	24	76.00	77.50	1,900	1,860	472	450	39.70	40.70	18,738	18,315
Idaho	126	120	66.00	72.00	8,316	8,640	406	379	38.60	41.80	15,672	15,842
Washington	263	253	60.50	74.00	15,912	18,722	221	215	30.30	34.90	6,696	7,504
Oregon	216	210	55.00	63.50	11,880	13,335	553	503	32.20	36.30	17,807	18,259
California	568	541	69.00	72.00	39,192	38,952	1,554	1,480	36.30	39.30	56,410	58,164
United States	21,988	21,262	53.90	55.33	1,185,119	1,176,338	39,453	37,067	33.49	33.38	1,321,135	1,237,376

CATTLE—Continued.

TABLE 156.—*Cattle: Wholesale price per 100 pounds, 1900–1915.*

Date.	Chicago.		Cincinnati.		St. Louis.		Kansas City.		Omaha.	
	Inferior to prime.		Fair to medium.		Good to choice native steers.		Common to prime.		Native beeves.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$1.75	$6.60	$3.00	$4.70	$4.00	$6.50	$3.90	$6.50	$3.50	$7.50
1901	2.10	7.00	2.90	5.05	4.75	8.25	4.00	7.00	3.50	7.25
1902	1.90	14.50	3.00	5.40	5.15	8.75	4.10	8.75	3.00	8.15
1903	1.50	8.35	2.25	4.40	5.00	6.00	3.75	6.00	2.65	5.75
1904	1.70	7.65	2.25	4.25	4.90	6.60	4.25	7.00	2.75	6.35
1905	1.85	7.00	2.35	4.75	5.15	7.10	4.00	7.05	3.05	6.50
1906	1.75	7.90	2.35	4.50	5.45	7.00	4.10	7.50	2.90	6.85
1907	2.00	8.00	4.10	6.00	5.35	7.35	3.90	8.25	3.10	7.30
1908	2.00	8.40	2.65	5.50	5.50	8.25	3.50	8.25	2.25	8.10
1909	2.90	9.50	3.00	5.50	5.70	10.50	3.70	10.50	3.75	8.00
1910	2.90	8.85	3.00	6.50	6.35	8.50	3.60	8.60	3.75	8.25
1911	2.50	9.35	3.25	5.35	6.25	9.40	4.25	12.55	3.50	8.00
1912	1.75	11.25	4.05	6.75	7.35	11.00	4.60	12.40	3.50	10.35
1913	3.00	10.25	4.50	7.65	8.00	10.00	4.50	10.00	3.00	9.60
1914	4.85	11.25	4.65	7.25	8.00	9.50	4.50	11.35	6.00	10.75
1915.										
January	4.60	9.65	4.85	6.25	....	....	6.00	9.75	8.50	8.50
February	4.25	9.25	5.00	6.65	....	....	6.00	8.85	8.30	8.30
March	4.50	9.15	5.10	6.50	....	....	6.00	8.65	8.45	8.45
April	4.65	8.90	5.00	6.50	....	....	6.00	9.00	8.50	8.50
May	4.90	9.65	5.25	7.00	....	....	6.00	9.25	9.00	9.00
June	4.75	9.95	5.35	7.00	....	....	6.00	9.35	9.35	9.35
July	4.50	10.40	5.25	7.00	....	....	6.60	10.10	10.10	10.10
August	4.50	10.50	4.60	6.65	....	....	6.60	10.00	9.85	9.85
September	4.25	10.50	4.15	6.00	....	....	6.60	10.10	9.85	9.85
October	4.00	10.60	4.00	5.80	....	....	6.60	10.25	9.90	9.90
November	4.50	10.55	4.50	5.75	....	....	6.00	10.25	10.00	10.00
December	4.50	13.60	4.50	6.00	....	....	5.50	10.35	10.00	10.00
Year	4.00	13.60	4.00	7.00	....	....	5.50	10.35	8.30	10.10

BUTTER AND EGGS.

TABLE 157.—*Butter: Wholesale price per pound, 1900–1915.*

Date.	Elgin.		Chicago.				Cincinnati.		Milwaukee.		New York.	
	Creamery, extra.		Creamery, extra.		Dairies, firsts to extras.		Creamery, extra.		Creamery, fancy.[1]		Creamery, extra.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	18	29	15½	29	14½	25	16	27	19	29½	17½	30
1901	18½	24½	15	24½	14	20	17	24	18½	25	18	25½
1902	19	30	16	31	15½	29	17	27	19½	30½	19	33
1903	18½	29	16	28½	15	25	15½	27	18½	28½	19	29½
1904	17	28	15	28	12½	24	17	28	17	27	17½	28
1905	19½	34	18	34	16	30	19	34	19½	34	17½	35½
1906	19	31½	16½	31	15	27	19	32½	19	31½	19¼	33
1907	23	33	18	32½	18	30	23	34	23	33	23½	35
1908	21	33	19	33½	18	29	21	36	21	33½	21¼	34
1909	24	36	22	35	20	30	26	38½	15	35	25	37
1910	27	36	24	36	23	30	29½	38½	18	36	27½	35
1911	21	36	18	37	15	33	23½	38½	21	36	19½	39
1912	25	40	24	40	22	34	27½	42½	25	40	26	41
1913	26	35½	24	36	24	33	30	40	26	35½	26	38
1914	23½	35½	24	35½	20	33½	27½	39½	23½	35½	24½	50

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[1] Changed from creamery extra (tubs) to creamery (tubs). Grade apparently unchanged, only classification different. Price apparently not affected.

BUTTER AND EGGS—Continued.

TABLE 157.—*Butter: Wholesale price per pound, 1900–1915*—Continued.

Date.	Elgin.		Chicago.				Cincinnati.		Milwaukee.		New York.	
	Creamery, extra.		Creamery, extra.		Dairies, firsts to extras.		Creamery, extra.		Creamery, fancy.		Creamery, extra.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1915.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts*
January	30	34	30	34	27½	32	34	38	30	34	32	36
February	29	32	29	32	26	30	34	36	30½	32	24	30
March	28½	29	28	29½	22	28	32	34½	28	30	25½	32
April	28	31½	27½	31	22	30	32	35½	28	31½	29	32
May	25½	28	26	28½	21	27	29½	32½	25½	28	27½	31
June	26½	28	27	27½	23	27	30½	32	26½	28½	28	28¼
July	24½	27	25	27	22	26	28½	31	25	26½	26	28½
August	24	25	24	25	21	25	28	29	24	24½	25	26¾
September	24½	26	24	26½	21	24	28	30	24	26	25½	28¼
October	26	28	26½	28	22	27	30	32	26	28	28	29
November	28	33	28	32	23	30	32	37	28	33	28¾	34
December	33	34	32	34	25	30	37	38	33	34	33	36½
Year	24	34	24	34	21	32	28	38	24	34	24	36½

TABLE 158.—*Butter: International trade, calendar years 1912–1914.*

[Butter includes all butter made from milk, melted and renovated butter, but does not include margarine cocoa butter, or ghee. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Argentina	8,106	8,342	7,676	Netherlands	86,307	81,702	....
Australia	67,183	76,334	56,163	New Zealand	42,349	41,693	....
Austria-Hungary	3,853	3,039	....	Norway	3,475	2,346	2,152
Belgium	2,625	2,147	....	Russia	160,771	172,003	116,139
Canada	884	1,220	2,500	Sweden	46,818	43,330	....
Denmark	187,755	200,670	....	United States	5,105	3,115	3,688
Finland	26,474	27,867	....	Other countries	3,866	4,033	....
France	37,572	38,360	....				
Germany	482	602	....	Total	692,468	712,837	....
Italy	8,843	6,034	9,310				

IMPORTS.

Austria-Hungary	10,265	14,616	....	Germany	122,472	119,576	....
Belgium	15,225	14,522	....	Netherlands	4,636	5,529	....
Brazil	4,208	4,336	2,364	Russia	2,754	3,382	2,095
British South Africa	4,946	3,910	3,924	Sweden	273	432	....
Canada	7,177	7,886	7,250	Switzerland	11,930	11,155	....
Denmark	5,966	6,242	....	United Kingdom	435,247	451,736	436,019
Dutch East Indies	4,486	4,550	....	Other countries	30,308	29,737	....
Egypt	2,197	1,958	1,945				
Finland	3,388	3,333	....	Total	679,657	695,934	....
France	14,179	13,034	....				

BUTTER AND EGGS—Continued.

Table 159.—*Butter: Average price received by farmers on first of each month, by States, 1915.*

State	Butter, cents per pound.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Maine	31	31	30	31	30	30	30	30	30	30	32	32
New Hampshire	34	34	32	33	32	30	32	33	31	32	33	34
Vermont	35	33	34	32	33	31	31	30	30	31	32	32
Massachusetts	36	37	36	33	33	33	34	35	34	35	34	34
Rhode Island	36	37	36	36	35	34	34	40	33	32	35	35
Connecticut	36	34	36	35	34	34	34	34	34	36	34	35
New York	35	34	33	31	30	30	29	29	29	29	31	32
New Jersey	37	36	35	34	35	32	34	33	33	33	35	34
Pennsylvania	35	33	32	29	30	28	27	26	28	30	31	32
Delaware	35	33	32	30	32	30	25	28	30	30	30	33
Maryland	30	29	29	29	29	27	26	27	27	26	28	29
Virginia	27	27	27	26	26	25	24	23	24	25	25	26
West Virginia	29	28	26	27	27	24	22	24	25	24	26	26
North Carolina	24	24	24	24	24	24	23	23	23	24	24	25
South Carolina	26	27	26	26	25	26	25	25	26	26	27	26
Georgia	25	25	23	25	24	33	24	24	24	24	24	26
Florida	36	35	35	34	34	33	33	32	33	32	35	33
Ohio	29	28	26	26	26	24	23	23	24	26	26	28
Indiana	26	25	24	24	24	23	22	22	23	23	23	25
Illinois	28	27	26	25	25	25	24	24	24	24	26	28
Michigan	30	29	28	26	26	24	23	23	24	24	26	27
Wisconsin	31	31	30	28	29	27	27	27	25	26	28	30
Minnesota	31	31	28	26	27	26	25	26	25	26	27	29
Iowa	29	29	28	26	26	25	25	24	25	25	26	27
Missouri	24	24	23	23	22	21	21	21	21	22	23	24
North Dakota	28	27	25	23	22	23	22	22	23	24	25	27
South Dakota	28	28	26	23	24	24	23	24	23	24	25	28
Nebraska	26	25	23	22	21	21	21	22	21	22	24	26
Kansas	27	26	24	22	23	22	22	22	23	24	25	26
Kentucky	22	22	22	21	22	19	18	19	19	20	22	22
Tennessee	21	21	20	21	20	19	19	18	18	19	20	22
Alabama	23	22	22	21	22	22	21	20	21	22	21	23
Mississippi	24	23	22	22	23	23	23	22	22	22	23	23
Louisiana	29	29	29	27	28	28	29	28	28	29	29	29
Texas	24	22	22	22	21	21	21	21	22	22	24	24
Oklahoma	24	24	22	22	21	22	21	21	21	23	25	26
Arkansas	24	24	23	23	23	22	23	22	22	23	25	25
Montana	35	34	34	32	30	29	27	27	25	29	31	34
Wyoming	33	33	32	30	27	26	29	28	28	30	30	33
Colorado	32	31	28	27	27	26	25	24	27	26	29	29
New Mexico	36	35	36	32	32	32	31	32	29	31	33	33
Arizona	36	37	37	30	32	35	30	36	35	35	37	37
Utah	33	29	27	30	26	27	26	25	27	28	30	30
Nevada	35	37	36	35	29	29	31	32	32	34	34	36
Idaho	32	31	26	26	27	25	22	25	27	30	29	32
Washington	35	33	31	31	26	26	27	29	29	32	32	33
Oregon	32	31	31	30	29	28	27	27	28	29	31	33
California	33	30	30	27	26	26	27	29	29	30	30	31
United States	28.7	27.9	26.8	25.8	25.7	24.8	24.2	24.2	24.5	25.3	26.4	27.6
United States	28.7	27.9	26.8	25.8	25.7	24.8	24.2	24.2	24.5	25.3	26.4	27.6
North Atlantic	34.8	33.4	32.7	30.7	30.6	29.6	29.0	28.6	29.2	30.1	31.5	32.2
South Atlantic	26.9	26.6	25.8	26.1	25.8	26.4	23.8	24.1	24.7	24.8	25.5	26.3
N. Central E. Miss. R	28.8	28.0	26.7	25.8	25.9	24.5	23.6	23.6	21.0	21.7	25.8	27.6
N. Central W. Miss. R	27.6	27.2	25.5	23.9	24.0	23.3	23.0	23.1	23.2	23.9	25.1	26.6
South Central	23.3	22.5	22.0	21.8	21.7	21.1	20.9	20.5	20.9	21.6	23.0	23.6
Far Western	33.1	31.1	30.1	28.7	26.9	26.5	26.6	27.7	28.3	29.6	30.4	31.7

BUTTER AND EGGS—Continued.

TABLE 160.—*Eggs: Average price received by farmers on first of each month, by States, 1915.*

State.	Eggs, cents per dozen.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Maine	41	32	27	19	21	22	22	24	27	32	38	44
New Hampshire	41	32	28	20	24	25	25	26	31	32	41	46
Vermont	40	33	28	19	19	20	21	24	25	30	39	43
Massachusetts	48	39	32	25	27	26	29	30	37	42	46	53
Rhode Island	45	38	30	20	23	24	27	28	33	40	48	53
Connecticut	50	38	31	21	21	24	25	30	32	37	44	49
New York	42	35	28	20	21	21	22	24	27	31	39	43
New Jersey	45	40	30	22	22	24	25	25	30	32	38	45
Pennsylvania	39	32	26	18	18	19	20	21	24	27	33	38
Delaware	38	29	26	20	18	18	18	20	23	26	34	39
Maryland	36	30	22	17	18	18	19	18	20	24	29	35
Virginia	31	27	20	16	17	17	17	17	18	23	25	29
West Virginia	32	30	23	18	17	18	18	19	20	23	25	30
North Carolina	27	25	17	15	16	16	16	15	17	20	23	25
South Carolina	25	24	19	17	18	18	18	17	19	24	24	27
Georgia	27	23	17	16	16	15	16	15	17	21	24	27
Florida	32	28	22	21	20	20	21	22	23	28	29	32
Ohio	33	31	20	17	18	17	17	18	19	24	28	33
Indiana	32	30	19	16	17	16	16	16	18	22	26	31
Illinois	32	31	21	16	17	16	16	16	17	21	25	29
Michigan	32	30	25	18	18	17	18	18	20	23	26	30
Wisconsin	30	30	24	17	17	17	17	17	18	20	25	29
Minnesota	31	30	23	16	17	16	16	16	17	20	25	29
Iowa	28	30	22	16	17	16	15	15	16	20	23	27
Missouri	28	28	18	16	16	15	15	14	15	19	22	25
North Dakota	31	29	25	16	15	15	15	14	16	20	24	29
South Dakota	28	29	23	16	16	15	15	15	17	19	23	26
Nebraska	27	26	20	15	15	15	16	13	15	18	23	27
Kansas	27	26	18	15	16	15	14	14	15	19	22	27
Kentucky	29	27	17	15	15	14	14	14	15	19	23	27
Tennessee	27	25	17	14	15	13	13	13	15	18	21	26
Alabama	25	22	16	14	15	14	13	13	14	17	20	24
Mississippi	24	23	16	15	15	14	15	14	15	19	22	24
Louisiana	26	25	20	16	18	16	18	17	19	21	23	23
Texas	27	23	16	14	13	13	13	14	15	17	21	24
Oklahoma	25	25	18	14	14	14	13	12	14	17	20	25
Arkansas	26	26	18	15	15	14	15	14	16	18	21	24
Montana	43	38	29	21	19	21	21	23	25	30	31	37
Wyoming	37	35	28	23	20	20	22	22	25	29	30	36
Colorado	37	32	24	19	19	18	19	20	24	26	30	33
New Mexico	36	34	31	21	23	23	24	25	24	25	29	32
Arizona	36	35	27	21	21	28	22	30	27	30	35	44
Utah	36	32	22	18	17	17	18	18	20	24	27	32
Nevada	49	45	34	29	22	24	25	30	30	34	40	45
Idaho	39	33	25	17	18	17	19	23	24	26	28	35
Washington	41	33	24	19	19	19	21	24	26	29	33	39
Oregon	40	31	26	20	19	20	20	23	23	27	32	38
California	41	32	24	20	19	22	22	24	28	33	38	44
United States	31.6	29.2	21.3	16.6	17.1	16.6	16.8	17.0	18.7	22.3	26.3	30.6
United States	31.6	29.2	21.3	16.6	17.1	16.6	16.8	17.0	18.7	22.3	26.3	30.6
North Atlantic	41.7	34.3	27.8	19.7	20.5	21.1	22.2	23.8	27.2	30.8	37.6	42.6
South Atlantic	30.3	26.8	20.0	16.7	17.0	17.0	17.4	17.1	18.7	22.7	25.4	29.2
N. Central E. Miss. R	32.0	30.5	21.4	16.7	17.4	16.5	16.7	17.0	18.3	22.2	26.1	30.6
N. Central W. Miss. R	28.1	28.2	20.3	15.7	16.3	15.4	15.0	14.4	15.6	19.3	22.8	26.8
South Central	26.5	21.5	17.0	14.5	14.6	13.7	13.8	13.8	15.2	18.0	21.3	24.8
Far Western	39.9	32.5	24.7	19.7	19.0	20.5	21.0	23.1	25.8	29.7	33.9	39.6

BUTTER AND EGGS—Continued.

TABLE 161.—*Butter: Receipts at seven leading markets in the United States, 1891–1915.*

[From Board of Trade, Chamber of Commerce, and Merchants' Exchange reports.]

[000 omitted.]

Year.	Boston.	Chicago.	Milwaukee.	St. Louis.	San Francisco.	Total 5 cities.	Cincinnati.	New York.
Averages:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Packages.*	*Packages.*
1891–1895	40,955	145,225	3,996	13,944	15,240	219,360	88	1,741
1896–1900	50,790	232,289	5,096	14,582	14,476	317,234	157	2,010
1901–1905	57,716	245,203	7,164	14,685	15,026	339,793	177	2,122
1906–1910	66,612	286,518	8,001	17,903	13,581	392,615	169	2,207
1901	57,500	253,809	5,590	13,477	14,972	345,348	238	2,040
1902	54,574	219,233	7,290	14,573	14,801	310,471	223	1,933
1903	54,347	232,032	6,857	14,080	13,570	320,886	121	2,113
1904	55,435	249,024	7,993	15,727	14,336	342,515	147	2,170
1905	66,725	271,915	8,091	15,566	17,450	379,747	155	2,355
1906	65,152	248,648	8,209	13,198	9,282	344,489	205	2,242
1907	63,589	263,715	8,219	13,453	16,725	365,701	187	2,113
1908	69,843	316,695	8,798	18,614	13,528	427,478	166	2,175
1909	65,054	284,547	7,458	21,086	14,449	392,594	150	2,250
1910	69,421	318,986	7,319	23,163	13,922	432,811	135	2,257
1911	63,874	334,932	8,632	21,839	17,606	449,883	162	2,405
1912	72,109	286,213	7,007	20,521	28,172	414,022	109	2,436
1913	70,737	277,651	9,068	24,726	23,122	405,304	103	2,517
1914	73,028	307,899	9,496	24,614	22,421	437,458	82	2,513
1915	82,396	341,202	8,624	21,079	28,349	[1] 481,650	130	2,734
1915								
January	3,354	19,950	771	1,873	1,594	27,541	6	176
February	3,089	18,515	510	1,773	1,554	25,441	12	166
March	4,311	22,202	497	2,005	2,576	31,590	12	181
April	5,674	21,248	448	1,399	2,996	31,766	9	170
May	7,798	30,298	876	1,865	3,155	43,991	8	224
June	16,268	47,765	1,079	2,181	2,775	70,068	12	389
July	14,474	43,312	883	2,188	3,599	64,455	10	340
August	10,150	38,651	717	1,913	2,591	54,022	12	281
September	7,883	32,990	582	1,660	2,024	45,140	11	271
October	4,274	25,659	534	1,624	1,921	34,012	11	219
November	2,943	21,886	483	1,314	1,732	28,359	12	166
December	2,178	18,726	1,244	[1] 1,284	1,832	[1] 25,265	15	151

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[1] Preliminary.

BUTTER AND EGGS—Continued.

TABLE 162.—*Eggs: Receipts at seven leading markets in the United States, 1891–1915.*

[From Board of Trade, Chamber of Commerce, and Merchants' Exchange reports.]

Year.	Boston.	Chicago.	Cincinnati.	Milwaukee.	New York.	St. Louis.	San Francisco.	Total.
Averages:	*Cases.*	*Cases.*	*Cases.*	*Cases.*	*Cases.*	*Cases.*	*Cases.*	*Cases.*
1891-1895	722,363	1,879,065	288,548	90,943	2,113,946	557,320	166,059	5,818,244
1896-1900	912,807	2,196,631	362,262	113,327	2,664,074	852,457	194,087	7,295,645
1901-1905	1,155,340	2,990,675	418,842	139,718	3,057,298	1,000,935	304,933	9,067,741
1906-1910	1,517,995	4,467,040	509,017	180,362	4,046,360	1,304,719	334,766	12,360,259
1901	1,040,555	2,783,709	493,218	128,179	2,909,194	1,022,646	277,500	8,655,001
1902	1,053,165	2,659,340	464,799	114,732	2,743,642	825,999	285,058	8,146,735
1903	1,164,777	3,279,248	338,327	129,278	2,940,091	959,648	335,228	9,146,597
1904	1,122,819	3,113,858	377,263	166,409	3,215,924	1,216,124	319,637	9,532,034
1905	1,395,385	3,117,221	420,604	159,990	3,477,638	980,257	307,243	9,858,338
1906	1,709,531	3,583,878	484,208	187,561	3,981,013	1,023,125	137,074	11,106,390
1907	1,594,576	4,780,356	588,636	176,826	4,262,153	1,288,977	379,439	13,070,963
1908	1,436,786	4,569,014	441,072	207,558	3,703,990	1,439,868	347,436	12,145,724
1909	1,417,397	4,557,906	519,652	160,418	3,903,867	1,395,987	340,185	12,295,412
1910	1,431,686	4,844,045	511,519	169,448	4,380,777	1,375,638	469,698	13,182,811
1911	1,441,748	4,707,335	605,131	175,270	5,021,757	1,736,915	587,115	14,275,271
1912	1,580,106	4,556,643	668,942	136,621	4,723,558	1,391,611	638,920	13,696,401
1913	1,589,399	4,593,800	594,954	187,931	4,666,117	1,397,962	574,222	13,604,385
1914	1,531,329	4,083,163	461,783	221,345	4,762,174	1,470,716	619,508	13,150,018
1915	1,766,185	4,896,246	806,834	199,521	4,582,218	1,446,697	629,571	[1] 14,327,182
1915.								
January	43,955	140,771	15,698	2,500	175,787	46,213	40,941	465,865
February	76,711	159,515	39,134	4,081	218,329	95,098	51,777	644,645
March	221,044	389,063	152,789	19,527	580,479	230,317	87,313	1,680,532
April	286,951	820,138	131,919	33,202	789,492	243,105	85,419	2,390,226
May	336,312	887,313	121,025	58,733	674,571	238,066	78,585	2,394,605
June	228,654	780,765	87,649	21,508	529,168	130,547	61,165	1,839,456
July	169,596	574,813	67,526	16,034	417,542	129,128	58,773	1,433,412
August	110,306	342,719	32,925	13,927	328,004	80,863	54,120	962,864
September	97,719	302,780	33,491	12,365	277,863	79,191	33,369	836,778
October	70,639	246,743	26,187	6,770	229,386	82,276	27,222	689,223
November	60,437	136,258	44,467	6,605	175,721	53,750	21,137	498,375
December	63,861	115,368	54,024	4,269	185,876	[1] 38,053	29,750	[1] 491,201

[1] Preliminary.

TABLE 163.—*Eggs: Wholesale price per dozen, 1900–1915.*

Date.	Chicago.		Cincinnati.		St. Louis.		Milwaukee.		New York.	
	Fresh.				Average best fresh.		Fresh.		Average best fresh.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
1900	10	26	9	22	8	23	10	24	12	29
1901	10	28	9	27	6	25	10	24	13	31
1902	13½	32½	13	32	11½	32	13½	30	15½	37
1903	10	30	12	28	11	28½	12½	27	15	45
1904	11	34½	14½	32	13	29	13½	32	16	47
1905	12	36	14	30	10½	34	14	31	16½	40
1906	11	36	13	29	11½	26	12½	33	14½	45
1907	13	30	13½	29	12	25½	12½	28	16	50
1908	14	33	13	36	12½	29	13	32	15	55
1909	17½	36½	17	37	16	40	14	34	19	55
1910	15	38	17	40	14½	35	10	30	22	55
1911	12	32	12½	39	11	29	11	32	17	60
1912	17	40	17	40	14½	39	15	38	20½	60
1913	16	37	15½	42	12	35	13	35	20	65
1914	17	36	[1] 16½	38½	14	35	15	32	20	62

[1] Prime firsts.

BUTTER AND EGGS—Continued.

TABLE 163.—*Eggs: Wholesale price per dozen, 1900-1915*—Continued.

Date.	Chicago.		Cincinnati.		St. Louis.		Milwaukee.		New York.	
	Fresh.				Average best fresh.		Fresh.		Average best fresh.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1915.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January	29	38	20	40½	28¼	37½	25	34	30	44
February	21	28	16	27	20	28	20	29	33	40
March	17	19½	14	20	17	18¾	16	20½	18¼	20¾
April	18¼	19¾	14½	19½	17¾	19	16½	18½	19½	22
May	16½	18¾	12½	18	16	18	16	18	18	21½
June	16	18	12½	18½	15¼	16¾	15½	16½	18½	21
July	16	17½	11	19	14½	15½	15½	16	18	21
August	16	21½	10	24	15½	20	15½	21	18	24½
September	21	24	17	27	20	22	19½	22½	24	29
October	23	27½	17½	30	21½	25½	20½	26	27	34
November	27	30½	17	36	26	30	24	30	30	40
December	26½	30½	19	34½	24½	29½	26	32	31	37
Year	16	38	10	40½	14½	37½	15½	34	18	44

CHEESE.

TABLE 164.—*Cheese: International trade, calendar years 1912-1914.*

[Cheese includes all cheese made from milk; "cottage cheese," of course, is included. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Bulgaria	4,030	[1] 4,030	....	Russia	7,455	8,373	....
Canada	154,345	148,849	138,265	Switzerland	66,435	78,739	....
France	27,690	31,405	....	United States	3,006	2,654	3,797
Germany	1,812	1,603	....	Other countries	9,982	13,903	....
Italy	67,505	72,321	65,409				
Netherlands	131,107	145,337	....	Total	537,999	575,720	....
New Zealand	64,632	68,506	....				

IMPORTS.

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
Algeria	6,747	[1] 6,747	....	Germany	47,277	57,903	....
Argentina	11,849	11,122	8,453	Italy	10,069	12,355	9,836
Australia	444	365	....	Russia	3,853	4,545	4,048
Austria-Hungary	12,797	13,200	....	Spain	5,180	5,749	5,150
Belgium	31,352	35,845	....	Switzerland	7,995	7,763	....
Brazil	6,280	4,196	3,288	United Kingdom	250,823	249,972	266,591
British South Africa	5,242	5,694	5,300	United States	48,929	55,590	55,477
Cuba	4,232	5,200	4,229	Other countries	19,491	22,262	....
Denmark	1,295	1,475	....				
Egypt	7,425	6,378	5,953	Total	528,838	558,226	....
France	47,558	51,865	....				

[1] Year preceding.

CHICKENS.

TABLE 165.—*Chickens: Average price per pound received by farmers on first of each month indicated, 1914 and 1915.*

State.	1914						1915											
	Feb.	Apr.	June.	Aug.	Oct.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Maine	14.9	14.5	14.4	15.9	14.7	14.0	14.0	13.8	14.6	14.2	15.0	14.5	15.4	14.8	14.8	16.0	14.6	14.0
New Hampshire	15.0	13.6	14.7	16.0	15.0	15.0	15.9	14.4	13.8	15.0	15.0	16.5	15.7	16.2	16.0	16.0	14.9	15.0
Vermont	14.1	13.2	14.0	14.0	14.1	14.5	13.4	14.7	13.7	13.4	14.0	14.6	14.2	15.1	14.5	14.0	15.6	14.5
Massachusetts	16.0	17.2	17.4	18.5	19.1	17.3	17.8	16.3	17.5	17.2	16.9	16.4	16.6	18.3	17.4	16.5	16.5	16.0
Rhode Island	20.0	18.0	18.0	21.0	19.5	16.5	16.8	16.5	20.0	18.0	18.9	18.0	21.0	18.0	18.3	19.7	17.8	17.5
Connecticut	17.0	16.6	16.5	18.0	18.5	17.7	17.7	17.7	17.8	18.6	18.2	18.0	18.8	18.8	18.7	20.0	18.8	17.3
New York	15.2	15.8	15.7	16.2	16.9	14.5	15.0	15.5	15.9	15.6	15.9	15.7	15.9	16.1	16.2	15.4	15.7	14.6
New Jersey	16.2	17.9	17.6	18.9	18.0	17.0	17.0	16.8	16.9	17.4	17.3	18.1	17.4	17.3	18.6	17.5	17.0	17.5
Pennsylvania	14.0	14.6	14.8	15.6	14.9	13.5	13.7	13.9	14.2	14.5	14.4	14.3	14.7	14.6	14.2	14.3	14.2	13.5
Delaware	12.5	14.5	15.0	19.0	15.5	13.0	13.5	12.3	14.5	13.5	14.3	14.2	13.0	13.0	13.0	15.0	13.0	13.0
Maryland	14.4	16.2	16.5	16.6	15.9	14.0	13.5	13.9	13.8	14.5	15.0	15.4	16.2	16.2	15.7	15.6	14.6	14.4
Virginia	14.3	14.5	14.9	15.2	14.2	13.2	13.1	13.1	13.4	13.6	14.1	14.8	15.5	15.3	14.5	14.1	14.0	13.5
West Virginia	12.9	13.4	12.8	13.9	13.9	13.0	12.7	13.3	12.8	13.0	12.9	13.2	13.5	13.6	13.4	12.9	13.0	12.5
North Carolina	11.6	11.7	12.9	13.1	12.6	12.0	11.3	11.5	11.6	11.2	11.8	12.9	12.9	13.0	12.7	12.4	12.8	12.0
South Carolina	12.9	13.5	13.5	13.2	13.1	12.8	12.7	12.5	12.7	12.2	12.3	13.9	12.7	13.5	13.6	13.1	12.7	13.0
Georgia	13.3	13.2	14.0	14.4	13.5	13.3	12.7	12.3	13.2	12.7	12.5	13.1	12.9	12.8	13.0	13.5	13.2	13.0
Florida	15.4	15.2	15.4	17.0	16.7	18.0	17.5	16.5	16.3	15.6	16.5	15.2	15.6	15.4	16.5	15.8	17.1	16.2
Ohio	12.1	13.1	13.0	13.3	12.9	11.1	10.7	11.5	11.7	12.6	12.6	12.6	12.3	12.5	12.7	12.5	12.2	11.7
Indiana	11.2	12.0	12.0	12.4	12.2	10.2	10.4	10.9	11.4	11.9	11.8	11.7	11.7	12.1	11.8	11.4	11.2	11.0
Illinois	11.2	12.1	12.5	12.3	11.9	10.6	10.7	10.9	11.4	11.7	11.8	11.7	11.7	11.8	11.8	11.4	11.5	11.0
Michigan	11.3	13.0	12.9	12.8	12.6	10.5	11.4	11.4	11.5	12.1	12.6	12.3	12.1	12.1	12.0	12.0	11.1	10.8
Wisconsin	11.3	11.3	12.5	12.4	12.4	10.5	10.8	11.0	11.5	11.9	12.3	12.1	12.1	11.8	11.8	11.7	11.1	10.5
Minnesota	10.1	10.8	10.6	11.3	11.0	9.3	9.3	9.8	10.2	10.0	10.3	10.7	10.2	10.3	10.2	10.3	9.9	9.9
Iowa	10.7	10.9	10.8	11.5	11.3	9.5	9.4	10.3	10.6	10.4	10.7	10.8	10.8	10.7	10.8	10.7	10.3	10.0
Missouri	10.6	11.8	12.0	11.5	11.2	10.0	9.5	10.7	10.8	11.4	11.2	11.5	11.5	11.4	11.1	10.9	10.7	10.4
North Dakota	10.2	10.2	10.2	10.4	11.0	9.7	8.9	10.0	10.0	10.3	10.5	10.2	11.4	10.7	10.9	10.5	10.3	9.7
South Dakota	9.3	8.8	9.4	9.7	9.9	9.1	9.1	9.2	9.0	9.2	8.9	9.2	9.3	9.7	9.7	9.4	9.4	8.8
Nebraska	9.5	10.7	10.1	10.7	10.5	9.3	8.9	9.4	9.6	10.0	10.7	9.9	9.6	9.8	9.6	9.4	9.1	9.6
Kansas	9.7	10.5	10.6	10.4	10.6	9.5	9.3	9.9	9.8	10.0	10.2	10.1	10.0	10.1	9.9	9.9	9.8	10.0
Kentucky	11.0	11.7	11.8	12.9	11.4	10.5	10.1	10.7	10.8	11.3	11.3	11.5	11.6	11.1	11.1	11.3	11.1	10.7
Tennessee	10.6	11.7	12.4	12.6	11.5	10.2	10.2	10.4	10.8	11.5	11.8	12.2	12.1	11.4	11.1	10.9	11.2	10.5
Alabama	12.5	12.2	13.0	14.0	13.6	13.3	12.2	12.5	12.0	12.2	11.9	12.5	12.8	12.3	11.6	12.4	12.0	12.5
Mississippi	11.5	12.5	13.0	12.7	12.3	12.4	12.4	11.9	11.1	11.3	11.5	12.3	13.0	11.6	12.0	11.6	12.1	12.0
Louisiana	13.3	13.5	12.9	13.0	13.6	13.7	14.2	14.6	14.0	13.4	14.5	14.8	15.5	14.6	14.0	15.4	14.5	14.6
Texas	9.9	9.9	10.4	10.6	10.5	10.0	10.0	9.6	9.6	9.9	9.9	10.3	10.1	10.8	10.9	10.6	10.8	10.2
Oklahoma	9.6	10.1	10.0	9.9	9.7	9.3	8.9	9.9	9.6	10.0	9.9	11.4	9.8	10.1	9.7	9.6	9.5	9.2
Arkansas	10.1	10.6	11.2	12.2	12.5	9.7	9.5	9.5	10.5	9.7	10.0	10.2	10.4	10.7	10.4	10.7	10.3	10.0
Montana	12.9	13.3	14.0	13.3	14.4	13.0	13.7	13.8	14.1	13.2	13.4	13.4	13.8	13.0	13.0	13.9	13.0	14.0
Wyoming	11.3	12.7	12.0	13.5	14.1	14.0	11.9	12.8	14.8	14.0	14.5	12.5	15.0	14.4	13.2	14.9	13.1	13.7
Colorado	13.1	12.6	13.0	12.8	14.1	13.0	13.5	12.9	12.0	13.2	13.1	12.8	12.8	13.1	13.8	12.6	13.0	12.0
New Mexico	15.0	13.2	15.0	13.2	13.9	13.8	13.2	15.1	14.0	14.2	13.4	12.6	12.8	12.3	12.6	13.2	14.3	12.9
Arizona	17.3	15.8	18.7	17.0	18.2	17.0	17.6	18.0	17.4	16.0	17.1	21.0	19.5	18.8	16.6	16.1	18.5	16.5
Utah	13.0	13.0	13.2	14.4	13.3	12.6	12.6	12.8	10.8	13.4	12.0	11.7	12.4	11.6	12.7	13.4	12.8	12.2
Nevada	19.0	22.8	19.3	18.0	21.0	21.0	17.5	18.7	20.3	22.0	22.0	22.0	25.0	21.0	21.0	20.8	21.0	19.3
Idaho	11.7	11.0	11.2	11.8	11.7	11.2	11.2	11.4	9.7	10.2	11.1	11.1	10.7	11.4	11.1	11.2	10.7	10.7
Washington	13.8	14.5	14.6	13.7	13.2	12.6	12.2	12.3	13.3	13.1	13.2	13.0	13.3	13.9	12.1	13.1	12.6	13.0
Oregon	12.8	13.8	14.1	13.2	13.8	12.0	12.7	11.4	12.7	12.6	13.3	12.3	11.9	13.0	11.8	12.4	12.4	11.9
California	16.0	15.2	15.6	16.0	15.5	16.5	16.9	16.9	16.0	15.5	16.0	16.0	15.8	15.7	15.8	15.9	15.3	16.0
United States	11.7	12.3	12.5	12.8	12.5	11.3	11.2	11.5	11.7	11.9	12.1	12.2	12.2	12.2	12.1	12.0	11.8	11.5

SHEEP AND WOOL.

TABLE 166.—*Sheep: Number and value on farms in the United States, 1867–1916.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of numbers are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available. It should also be observed that the census of 1910 giving numbers as of Apr. 15, is not strictly comparable with former censuses, which related to numbers June 1.

Year.	Number.	Price per head Jan. 1.	Farm value Jan. 1.
1867	39,385,000	$2.50	$98,644,000
1868	38,992,000	1.82	71,053,000
1869	37,724,000	1.64	62,037,000
1870	40,853,000	1.96	79,876,000
1870, census, June 1	*28,477,951*		
1871	31,851,000	2.14	68,310,000
1872	31,679,000	2.61	82,768,000
1873	33,002,000	2.71	89,427,000
1874	33,938,000	2.43	82,353,000
1875	33,784,000	2.55	86,278,000
1876	35,935,000	2.37	85,121,000
1877	35,804.000	2.13	76,362,000
1878	35,740,000	2.21	78,898,000
1879	38,124,000	2.07	78,965,000
1880	40,766,000	2.21	90,231,000
1880, census, June 1	*35,192,074*		
1881	43,570,000	2.39	104,071,000
1882	45,016,000	2.37	106,596,000
1883	49,237,000	2.53	124,366,000
1884	50,627,000	2.37	119,903,000
1885	50,360,000	2.14	107,961,000
1886	48,322,000	1.91	92,444,000
1887	44,759,000	2.01	89,873,000
1888	43,545,000	2.05	89,280,000
1889	42,599,000	2.13	90,640,000
1890	44,336,000	2.27	100,660,000
1890, census, June 1	*35,935,364*		
1891	43,431,000	2.50	108,397,000
1892	44,938,000	$2.58	$116,121,000
1893	47,274,000	2.66	125,909,000
1894	45,048,000	1.98	89,186,000
1895	42,294,000	1.58	66,686,000
1896	38,299,000	1.70	65,168,000
1897	36,819,000	1.82	67,021,000
1898	37,657,000	2.46	92,721,000
1899	39,114,000	2.75	107,698,000
1900	41,883,000	2.93	122,666,000
1900, census, June 1	*61,503,713*		
1901 [1]	59,757,000	2.98	178,072,000
1902	62,039,000	2.65	164,446,000
1903	63,965,000	2.63	168,316,000
1904	51,630,000	2.59	133,530,000
1905	45,170,000	2.82	127,332,000
1906	50,632,000	3.54	179,056,000
1907	53,240,000	3.84	204,210,000
1908	54,631,000	3.88	211,736,000
1909	56,084,000	3.43	192,632,000
1910	57,216,000		
1910, census, Apr. 15	*52,447,861*	4.12	216,030,000
1911 [1]	53,633,000	3.91	209,535,000
1912	52,362,000	3.46	181,170,000
1913	51,482,000	3.94	202,779,000
1914	49,719,000	4.02	200,045,000
1915	49,956,000	4.50	224,687,000
1916	49,162,000	5.17	254,348,000

[1] Estimates of numbers revised based on census data.

TABLE 167.—*Sheep: Number and value on farms Jan. 1, 1915 and 1916, by States.*

State.	Number (thousands) Jan. 1—		Average price per head, Jan. 1—		Farm value (thousands of dollars) Jan. 1—	
	1916	1915	1916	1915	1916	1915
Maine	162	$165	$4.80	$4.50	$778	$742
New Hampshire	37	38	5.50	4.90	204	186
Vermont	100	105	5.90	5.10	590	536
Massachusetts	28	30	5.50	5.60	154	168
Rhode Island	6	7	5.90	5.20	35	36
Connecticut	18	19	5.80	5.70	104	108
New York	849	849	6.20	5.80	5,264	4,924
New Jersey	29	31	6.40	6.00	186	186
Pennsylvania	856	831	5.60	5.30	4,794	4,404
Delaware	8	8	5.30	5.30	42	42
Maryland	223	223	5.40	5.20	1,204	1,160
Virginia	734	720	4.90	4.50	3,597	3,240
West Virginia	796	796	5.10	4.50	4,060	3,582
North Carolina	170	177	3.20	3.30	544	584
South Carolina	30	32	2.70	2.60	81	83
Georgia	161	163	2.40	2.30	386	375
Florida	119	119	2.30	2.20	274	262
Ohio	3,067	3,263	5.40	4.70	16,562	15,336
Indiana	1,058	1,114	6.10	5.40	6,454	6,016
Illinois	907	935	5.90	5.40	5,351	5,049

SHEEP AND WOOL—Continued.

TABLE 167.—*Sheep: Number and value on forms Jan. 1, 1915 and 1916, by States*—Con.

State.	Number (thousands) Jan. 1—		Average price per head, Jan. 1—		Farm value (thousands of dollars) Jan. 1—	
	1916	1915	1916	1915	1916	1915
Michigan	1,931	2,033	5.70	5.00	11,007	10,165
Wisconsin	664	781	5.30	5.00	3,519	3,905
Minnesota	536	564	4.80	4.60	2,573	2,594
Iowa	1,274	1,249	6.30	5.60	8,026	6,994
Missouri	1,416	1,490	5.80	5.00	8,213	7,450
North Dakota	250	250	5.10	4.50	1,275	1,125
South Dakota	604	636	5.20	4.50	3,141	2,862
Nebraska	374	374	5.40	4.80	2,020	1,795
Kansas	341	316	5.60	4.90	1,910	1,548
Kentucky	1,155	1,229	4.90	4.20	5,660	5,162
Tennessee	661	674	4.10	3.70	2,710	2,494
Alabama	119	119	2.60	2.30	309	274
Mississippi	208	208	2.50	2.20	520	458
Louisiana	185	180	2.30	2.20	426	396
Texas	2,156	2,114	3.70	3.20	7,977	6,765
Oklahoma	95	76	5.00	4.20	475	319
Arkansas	124	130	2.90	2.60	360	338
Montana	3,941	4,379	5.10	4.40	20,099	19,268
Wyoming	4,338	4,427	5.60	4.70	24,293	20,807
Colorado	1,839	1,751	5.20	4.40	9,563	7,704
New Mexico	3,440	3,340	4.30	3.50	14,792	11,690
Arizona	1,849	1,761	4.70	4.00	8,690	7,044
Utah	2,089	2,068	5.40	4.50	11,281	9,306
Nevada	1,532	1,532	5.80	4.90	8,886	7,507
Idaho	3,102	3,041	5.60	4.70	17,371	14,293
Washington	568	546	5.30	4.80	3,010	2,621
Oregon	2,563	2,563	5.20	4.50	13,328	11,534
California	2,450	2,500	5.00	4.50	12,250	11,250
United States	49,162	49,956	5.17	4.50	254,348	224,687

TABLE 168.—*Sheep: Imports, exports, and prices, 1893–1915.*

Year ending June 30—	Imports.			Exports.		
	Number.	Value.	Average import price.	Number.	Value.	Average export price.
1893	459,484	$1,682,977	$3.66	37,260	$126,394	$3.39
1894	242,568	788,181	3.25	132,370	832,763	6.29
1895	291,461	682,618	2.34	405,748	2,630,686	6.48
1896	322,692	853,530	2.65	491,565	3,076,384	6.26
1897	405,633	1,019,668	2.51	244,120	1,531,645	6.27
1898	392,314	1,106,322	2.82	199,690	1,213,886	6.08
1899	345,911	1,200,081	3.47	143,286	853,555	5.96
1900	381,792	1,365,026	3.58	125,772	733,477	5.83
1901	331,488	1,236,277	3.73	297,925	1,933,000	6.49
1902	266,953	956,710	3.58	358,720	1,940,060	5.41
1903	301,623	1,036,934	3.44	176,961	1,067,860	6.03
1904	238,094	815,289	3.42	301,313	1,954,604	6.49
1905	186,942	704,721	3.77	268,365	1,687,321	6.29
1906	240,747	1,020,359	4.24	142,690	804,090	5.64
1907	224,798	1,120,425	4.98	135,344	750,242	5.54
1908	224,765	1,082,606	4.82	101,000	589,285	5.83
1909	102,663	502,640	4.90	67,656	365,155	5.40
1910	126,152	696,879	5.52	44,517	209,000	4.69
1911	53,455	377,625	7.06	121,491	636,272	5.24
1912	23,588	157,257	6.67	157,263	626,985	3.99
1913	15,428	90,021	5.83	187,132	605,725	3.24
1914	223,719	532,404	2.38	152,600	534,543	3.50
1915	153,317	533,967	3.48	47,213	182,278	3.86

SHEEP AND WOOL—Continued.

TABLE 169.—*Sheep: Wholesale price per 100 pounds, 1900–1915.*

Date.	Chicago.		Cincinnati.		St. Louis.		Kansas City.		Omaha.	
	Native.		Good to extra.		Good to choice natives.		Native.		Western.[1]	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$2.00	$6.50	$1.25	$6.00	$3.40	$6.25	$2.75	$6.50	$2.00	$6.10
1901	1.40	5.25	2.10	5.00	3.00	5.10	1.50	5.00	2.00	5.00
1902	1.25	6.50	2.50	5.75	3.65	6.35	2.00	6.50	2.00	6.25
1903	1.25	7.00	2.60	6.25	3.50	6.25	2.25	6.80	3.00	6.75
1904	1.50	6.00	2.75	4.60	3.75	5.65	2.00	6.00	2.25	5.90
1905	2.75	4.50	3.60	5.50	4.60	6.35	2.75	6.90	2.50	6.90
1906	3.00	6.50	3.85	5.75	5.00	6.45	2.50	6.75	2.75	6.50
1907	2.00	7.00	3.65	5.90	4.25	7.00	2.25	7.75	3.00	7.75
1908	1.50	7.00	2.75	5.50	4.10	6.90	1.50	7.15	1.25	7.40
1909	2.00	6.90	3.35	5.75	4.25	6.65	2.00	8.00	2.00	6.70
1910	1.50	9.00	3.00	7.00	3.75	8.75	2.00	9.50	2.00	8.25
1911	1.25	5.25	2.40	5.15	3.50	5.00	1.50	6.25	2.50	6.20
1912	1.50	8.25	2.85	5.50	3.75	7.00	[2] 3.30	[2] 8.00	3.00	8.00
1913	2.00	7.50	3.25	7.00	4.00	7.25	2.00	7.50	2.75	8.15
1914	2.00	7.00	4.00	6.15	4.50	6.50	[2] 2.25	7.50	4.80	8.00
1915.										
January	3.00	8.00	4.10	5.00	....	....	4.50	7.80	4.75	4.75
February	3.75	8.65	4.50	5.75	....	....	5.00	8.00	4.75	4.75
March	4.00	9.25	5.50	8.75	....	....	5.50	8.75	7.00	7.00
April	4.00	8.50	6.10	7.00	....	....	6.50	10.00	7.00	7.00
May	3.50	10.65	5.00	8.75	....	....	5.50	9.75	6.75	6.75
June	2.50	9.25	4.25	5.50	....	....	4.50	9.00	4.00	4.00
July	2.00	8.75	4.50	5.75	....	....	4.50	8.00	4.25	4.25
August	2.50	7.75	4.75	8.75	....	....	4.00	8.00	4.50	4.50
September	2.00	7.50	4.60	5.50	....	....	4.00	8.00	4.50	4.50
October	3.00	7.65	4.75	8.15	....	....	4.00	8.00	4.50	4.50
November	2.75	7.75	4.75	6.00	....	....	5.00	7.25	4.50	4.50
December	3.00	8.50	4.75	6.25	....	....	5.00	8.25	4.00	4.00
Year	2.00	10.65	4.10	8.75	....	....	4.00	10.00	4.00	7.00

[1] Natives to 1908.

[2] Not including lambs.

SHEEP AND WOOL—Continued.

TABLE 170.—*Wool: Product, by States, 1915.*[1]

State and year.	Number of fleeces.	Average weight of fleece.	Wool product, raw.
		Pounds.	*Pounds.*
Maine	148,000	6.3	932,000
New Hampshire	31,000	6.3	195,000
Vermont	83,000	7.1	589,000
Massachusetts	20,000	6.4	128,000
Rhode Island	5,000	5.0	25,000
Connecticut	15,000	5.5	82,000
New York	535,000	6.5	3,478,000
New Jersey	17,000	5.6	95,000
Pennsylvania	650,000	6.2	4,030,000
Delaware	5,000	5.7	28,000
Maryland	127,000	5.9	749,000
Virginia	439,000	4.7	2,063,000
West Virginia	681,000	5.0	3,405,000
North Carolina	145,000	3.9	566,000
South Carolina	29,000	4.0	116,000
Georgia	200,000	2.6	520,000
Florida	107,000	3.1	332,000
Ohio	2,110,000	6.8	14,350,000
Indiana	725,000	6.8	4,920,000
Illinois	530,000	7.5	3,975,000
Michigan	1,170,000	6.9	8,073,000
Wisconsin	550,000	7.2	3,960,000
Minnesota	420,000	7.0	2,940,000
Iowa	720,000	7.5	5,400,000
Missouri	1,050,000	6.7	7,035,000
North Dakota	225,000	7.2	1,620,000
South Dakota	500,000	7.0	3,500,000
Nebraska	240,000	7.4	1,776,000
Kansas	205,000	7.1	1,456,000
Kentucky	725,000	4.9	3,552,000
Tennessee	435,000	4.4	1,914,000
Alabama	106,000	3.8	403,000
Mississippi	155,000	3.4	527,000
Louisiana	145,000	3.7	536,000
Texas	1,600,000	5.8	9,280,000
Oklahoma	70,000	7.0	490,000
Arkansas	90,000	4.5	406,000
Montana	3,725,000	7.7	28,682,000
Wyoming	3,630,000	8.0	29,040,000
Colorado	1,250,000	6.0	7,500,000
New Mexico	3,325,000	5.6	18,620,000
Arizona	950,000	6.3	5,985,000
Utah	1,800,000	7.4	13,320,000
Nevada	765,000	7.7	5,890,000
Idaho	1,935,000	7.9	15,286,000
Washington	460,000	8.3	3,818,000
Oregon	1,950,000	8.0	15,600,000
California	1,900,000	6.1	11,590,000
United States	36,698,000	6.78	[2]288,777,000

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[1] Estimate of United States Department of Agriculture.

[2] Includes pulled wool.

SHEEP AND WOOL—Continued.

TABLE 171.—*Wool: Wholesale price per pound in Boston, 1900–1915.*

Date.	Ohio fine, unwashed.		Kentucky quarter blood, unwashed.		Ohio XX, washed.		Ohio half blood combing, washed.		Ohio Delaine, washed.		Michigan fine, unwashed.[1]	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	18	25	23	29	27	38	28	39	27½	40	21½	29
1901	16½	19½	19½	24	26	28	25	29	27½	30	17½	21
1902	19	23	20½	24	27	32	26	31	28	35	18	22
1903	20	25	22	25	30	35	29	34	33½	37	21	27½
1904	21	25	24	33	32	36	30	40	34	38	19	22
1905	23	30	30	37	34	37	36	43	36	40	20	27
1906	24	28	30	34	33½	36	37	41	35½	37½	24	26½
1907	25	28	29	34	33	35	38	41	36	39	23	26
1908	19	27	20	30	30	35	31	40	31	39	18	25
1909	23	28	27	37	34	38	38	41	37	42	22	26
1910	20	28	24	36	30	38	27	41	34	40	19	26
1911	18	22	22½	27	27	32	25	30	29	34	17	21
1912	21	25	22½	33	28	33	26	30	30	35	19	23
1913	20	24	23½	32	25	32	23	29	26	34	19	23
1914	20	25	23½	29	25½	31½	23	30	26	32	19	23
1915.												
January	23	25	29	32	29	31	29	32	30	32	22	23
February	25	29	33	37	30	33	31	36	32	36	23	26
March	28	29	37	38	33	34	35	38	35½	37	26	26
April	26	29	31	38	32	33	34	38	34	36	22	26
May	26	27	36	37	32	32	33	36	32	35	22	23
June	26	27	36	39	32	32	34	35	32	34	22	23
July	26	27½	38	39½	32	32	35	36	33½	35	23	23
August	26	27½	38½	39½	32	32	35	36	34	35	23	24
September	26	27½	37	39½	32	32	33	36	34	35	23	27½
October	25	27	36	37	32	32½	32½	34	34	35	23	24
November	25	27	36	38	32	32½	32½	34	34	35	23	24
December	26	27	35	35	32½	32½	34	35	35	36	25	25
Year	23	29	29	39½	29	34	29	38	30	37	22	27½

Date.	Fine Territory, staple scoured.		Fine medium Territory, clothing scoured.		Texas, 12 months, scoured.		Fine fall, Texas scoured.		Pulled, A super, scoured.		Pulled, B super, scoured.	
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	49	74	45	62	48	65	40	55	42	57	37	50
1901	43	50	35	44	43	50	36	42	35	45	30	38
1902	48	59	42	50	48	60	38	48	38	46	33	40
1903	52	60	50	58	48	60	44	48	40	47	39	44
1904	50	70	50	68	52	68	44	56	43	60	40	55
1905	65	78	60	72	63	76	54	63	55	65	52	60
1906	70	78	65	70	72	76	58	63	53	69	47	56
1907	70	75	66	73	70	75	50	62	45	60	38	52
1908	53	72	43	62	50	72	42	53	42	55	32	45
1909	62	80	60	72	60	78	45	62	47	65	38	58
1910	60	80	54	68	55	75	48	62	50	65	45	58
1911	53	62	51	60	46	60	41	50	45	55	41	47
1912	60	67	48	59	52	65	42	48	45	58	41	54
1913	51	67	46	59	50	65	41	50	42	58	36	54
1914	51	65	46	57	50	62	41	50	43	55	36	56
1915.												
January	62	66	55	59	56	60	42	52	56	59	57	63
February	67	75	60	68	64	73	53	58	57	62	58	72
March	72	75	65	68	71	75	58	60	60	68	65	74
April	70	73	65	68	70	73	58	60	61	65	58	65
May	68	70	63	68	65	70	54	60	60	63	57	63
June	68	70	63	65	65	68	54	55	63	65	60	65
July	70	73	63	65	66	70	54	57	63	65	60	65
August	71	74	65	65	68	70	55	57	63	65	60	65
September	72	74	65	65	68	70	55	57	60	65	58	65
October	70	73	65	65	66	68	55	57	60	65	55	63
November	70	73	62	65	65	67	55	57	60	66	55	64
December	73	75	65	68	65	70	54	56	62	66	59	64
Year	62	75	55	68	56	75	42	60	56	68	55	74

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[1] Quoted as X, washed, in 1900.

SHEEP AND WOOL—Continued.

TABLE 172.—*Wool: Wholesale price per pound, 1900–1915.*

Date.	Boston.		Philadelphia.		St. Louis.	
	Ohio XX, washed.		Ohio XX, washed.[1]		Best tub, washed.	
	Low.	High.	Low.	High.	Low.	High.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
1900	27	38	27	37	28	36
1901	26	28	25	28	24	29¼
1902	27	32	26	32	24	29
1903	30	35	30	34	27	31
1904	32	36	31½	33½	30½	41
1905	34	37	34	36	37	43
1906	33½	36	33	35	31	40
1907	33	35	33	34	33	38
1908	30	35	30	34	22	33
1909	34	38	32	35	30	38
1910	30	38	30	35	31	37
1911	27	32	27	31	28	33
1912	28	33	25	31	27	38
1913	25	32	22	31	28	37
1914	25½	31½	22	29	28	33
1915.						
January	29	31	29	31	31	34
February	25	29	30	33	33	40
March	33	34	33	34	40	40
April	34	38	31	33½	37	40
May	32	32	31	32	38	41
June	32	32	31	32½	40	41
July	32	32	28	32½	40	42
August	32	32	29	32	40	42
September	32	32	31	32	40	42
October	32	32	31	32	40	42
November	32	32½	31½	32½	40	42
December	32½	32½	32	33½	40	44
Year	25	38	28	34	31	44

[1] One-fourth to three-eighths unwashed, 1912–1914.

TABLE 173.—*Wool: International trade, calendar years 1912–1914.*

["Wool" in this table includes: Washed, unwashed, scoured, and pulled wool: slipe, sheep's wool on skins (total weight of wool and skins taken); and all other animal fibers included in United States classification of wool. The following items have been considered as not within this classification: Corded, combed, and dyed wool; flocks, goatskins with hair on, mill waste, noils, and tops. See "General note," p. 417.]

EXPORTS.

[000 omitted.]

Country.	1912	1913	1914 (prelim.).	Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
Algeria	11,635	11,635	....	New Zealand	195,030	193,338	....
Argentina	363,680	264,728	258,533	Persia [1]	9,438	[2] 9,438	....
Australia	693,496	603,271	414,286	Peru	7,670	9,770	10,665
Belgium	246,687	218,193	....	Russia	42,014	38,200	16,431
British India	53,686	51,031	44,705	Spain	24,987	31,937	27,810
British South Africa	185,471	194,343	152,851	Turkey [3]	24,084	24,084	....
Chile	27,366	28,418	27,043	United Kingdom	48,554	29,079	38,848
China	41,670	43,327	44,821	Uruguay	178,441	[2] 178,441	98,298
France	88,990	79,600	....	Other countries	34,786	33,343	....
Germany	49,743	47,774	....				
Netherlands	31,851	30,173	....	Total	2,359,279	2,120,123	....

[1] Year beginning Mar. 21.

[2] Year preceding.

[3] Data for year beginning Mar. 14, 1910.

SHEEP AND WOOL—Continued.

TABLE 173.—*Wool: International trade, calendar years 1912–1914*—Continued.

IMPORTS.

Country.	1912	1913	1914 (prelim.).
	Pounds.	*Pounds.*	*Pounds.*
Austria-Hungary	67,425	58,650	....
Belgium	345,758	329,074	....
British India	26,066	29,116	22,749
Canada	8,836	8,587	9,518
France	579,624	593,781	....
Germany	517,120	481,571	....
Japan	13,451	11,741	....
Netherlands	37,681	38,419	....
Russia	99,431	121,691	64,172
Sweden	6,703	6,022	....
Switzerland	11,295	10,444	....
United Kingdom	555,161	582,618	498,192
United States	238,118	130,183	260,193
Other countries	64,845	64,843	....
Total	2,571,514	2,466,740	....

SWINE.

TABLE 174.—*Swine: Number and value on farms in the United States, 1867–1916.*

NOTE.—Figures in *italics* are census returns; figures in roman are estimates of the Department of Agriculture. Estimates of numbers are obtained by applying estimated percentages of increase or decrease to the published numbers of the preceding year, except that a revised base is used for applying percentage estimates whenever new census data are available. It should also be observed that the census of 1910, giving numbers as of Apr. 15, is not strictly comparable with former censuses, which related to numbers June 1.

Jan. 1—	Number.	Price per head.	Farm value.
1867	24,694,000	$4.03	$99,637,000
1868	24,317,000	3.29	79,976,000
1869	23,316,000	4.65	108,431,000
1870	26,751,000	5.80	155,108,000
1870, census, June 1	*25,134,569*	....	....
1871	29,458,000	5.61	165,312,000
1872	31,796,000	4.01	127,453,000
1873	32,632,000	3.67	119,632,000
1874	30,861,000	3.98	122,695,000
1875	28,062,000	4.80	134,581,000
1876	25,727,000	6.00	154,251,000
1877	28,077,000	5.66	158,873,000
1878	32,262,000	4.85	156,577,000
1879	34,766,000	3.18	110,508,000
1880	34,034,000	4.28	145,782,000
1880, census, June 1	*47,681,700*	....	....
1881	36,248,000	4.70	170,535,000
1882	44,122,000	5.97	263,543,000
1883	43,270,000	6.75	291,951,000
1884	44,201,000	5.57	246,301,000
1885	45,143,000	5.02	226,402,000
1886	46,092,000	4.26	196,570,000
1887	44,613,000	4.48	200,043,000
1888	44,347,000	4.98	220,811,000
1889	50,302,000	5.79	291,307,000
1890	51,603,000	4.72	243,418,000
1890, census, June 1	*57,409,583*	....	....
1891	50,625,000	$4.15	$210,194,000
1892	52,398,000	4.60	241,031,000
1893	46,095,000	6.41	295,426,000
1894	45,206,000	5.98	270,385,000
1895	44,166,000	4.97	219,501,000
1896	42,843,000	4.35	186,530,000
1897	40,600,000	4.10	166,273,000
1898	39,760,000	4.39	174,351,000
1899	38,652,000	4.40	170,110,000
1900	37,079,000	5.00	185,472,000
1900, census, June 1	*62,868,041*	....	....
1901[1]	56,982,000	6.20	353,012,000
1902	48,699,000	7.03	342,121,000
1903	46,923,000	7.78	364,974,000
1904	47,009,000	6.15	289,225,000
1905	47,321,000	5.99	283,255,000
1906	52,103,000	6.18	321,803,000
1907	54,794,000	7.62	417,791,000
1908	56,084,000	6.05	339,030,000
1909	54,147,000	6.55	354,794,000
1910	47,782,000	....	....
1910, census, Apr. 1	*58,185,676*	9.17	533,309,000
1911[1]	65,620,000	9.37	615,170,000
1912	65,410,000	8.00	523,328,000
1913	61,178,000	9.86	603,109,000
1914	58,933,000	10.40	612,951,000
1915	64,618,000	9.87	637,479,000
1916	68,047,000	8.40	571,890,000

[1] Estimates of numbers revised, based on census data.

SWINE—Continued.

TABLE 175.—*Swine: Number and value on farms Jan. 1, 1915 and 1916, by States.*

State.	Number (thousands) Jan. 1—		Average price per head Jan. 1—		Farm value (thousands of dollars) Jan. 1—	
	1916	1915	1916	1915	1916	1915
Maine	102	95	$12.00	$15.70	$1,224	$1,492
New Hampshire	55	52	12.50	14.00	688	728
Vermont	113	108	10.30	13.00	1,164	1,404
Massachusetts	112	108	13.20	15.50	1,478	1,674
Rhode Island	15	15	11.00	13.50	165	202
Connecticut	59	58	13.60	15.50	802	899
New York	799	768	11.80	14.30	9,428	10,982
New Jersey	161	161	12.80	14.00	2,061	2,254
Pennsylvania	1,210	1,186	10.40	13.50	12,584	16,011
Delaware	61	60	9.00	10.20	549	612
Maryland	359	349	8.50	9.70	3,052	3,385
Virginia	1,023	956	7.00	7.90	7,161	7,552
West Virginia	378	374	9.00	9.60	3,402	3,590
North Carolina	1,601	1,525	7.80	8.20	12,488	12,505
South Carolina	917	819	8.50	8.60	7,794	7,043
Georgia	2,348	2,042	7.70	8.00	18,080	16,336
Florida	996	949	6.00	6.00	5,976	5,694
Ohio	3,713	3,640	9.00	11.20	33,417	40,768
Indiana	4,167	4,167	8.50	10.30	35,420	42,920
Illinois	4,489	4,358	9.00	10.30	40,401	44,887
Michigan	1,462	1,392	9.00	10.90	13,158	15,173
Wisconsin	2,142	2,255	9.00	12.00	19,278	27,060
Minnesota	1,716	1,716	9.50	12.50	16,302	21,450
Iowa	9,069	8,720	9.30	11.00	84,342	95,920
Missouri	4,505	4,250	7.10	8.10	31,986	34,425
North Dakota	706	642	9.00	11.80	6,354	7,576
South Dakota	1,314	1,195	10.10	11.00	13,271	13,145
Nebraska	4,266	3,809	9.40	10.90	40,100	41,518
Kansas	2,815	2,656	9.10	10.10	25,616	26,826
Kentucky	1,709	1,582	6.50	7.20	11,108	11,390
Tennessee	1,531	1,501	6.80	7.80	10,411	11,708
Alabama	1,715	1,559	7.60	7.80	13,034	12,160
Mississippi	1,617	1,540	6.20	7.20	10,025	11,088
Louisiana	1,553	1,412	7.30	7.70	11,337	10,872
Texas	3,197	2,880	7.70	9.00	24,617	25,920
Oklahoma	1,491	1,420	7.20	8.20	10,735	11,644
Arkansas	1,589	1,573	5.40	6.50	8,581	10,224
Montana	298	276	9.00	10.80	2,682	2,981
Wyoming	70	64	9.40	11.40	658	730
Colorado	320	256	8.20	10.50	2,624	2,688
New Mexico	91	73	9.00	9.80	819	715
Arizona	40	31	11.00	12.00	440	372
Utah	112	98	7.80	10.20	874	1,000
Nevada	40	36	9.00	11.60	360	418
Idaho	344	328	7.00	10.00	2,408	3,280
Washington	314	327	8.50	11.10	2,669	3,630
Oregon	396	360	7.10	9.50	2,812	3,420
California	947	877	8.40	10.50	7,955	9,208
United States	68,047	64,618	8.40	9.87	571,890	637,479

SWINE—Continued.

TABLE 176.—*Hogs (live): Wholesale price per 100 pounds, 1900–1915.*

Date.	Cincinnati.		St. Louis.		Chicago.		Kansas City.		Omaha.	
	Packing, fair to good.		Mixed packers.		Mixed and packers.					
	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.
1900	$4.45	$5.85	$4.40	$5.75	$4.05	$5.82½	$4.40	$5.67½	$4.15	$5.62
1901	5.15	7.20	4.90	7.10	4.85	7.30	5.05	7.12½	4.45	6.85
1902	5.85	8.00	5.80	8.20	5.65	8.20	6.10	8.17½	5.25	8.05
1903	4.15	7.75	4.20	7.60	3.90	7.80	4.35	7.60	4.10	7.55
1904	4.35	6.25	4.25	6.30	4.15	6.37½	4.47½	6.07½	4.20	6.05
1905	4.60	6.35	4.75	6.35	4.25	6.42½	4.55	6.25	4.30	6.10
1906	5.30	6.95	5.10	6.97	4.95	7.10	5.20	6.87½	4.85	6.75
1907	4.15	7.40	4.00	7.22	3.75	7.22½	4.00	7.15	3.80	7.05
1908	4.15	7.35	4.20	7.35	4.00	7.50	4.00	7.15	3.97	6.90
1909	5.75	8.80	5.75	8.65	5.50	8.70	5.25	8.50	5.25	8.50
1910	6.95	11.10	6.80	11.05	6.60	11.15	6.90	10.90	7.26	10.85
1911	5.75	8.25	5.80	8.22	5.55	8.30	5.60	8.05	5.59	8.10
1912	6.10	9.35	5.75	9.25	5.75	9.40	5.65	9.05	7.00	9.00
1913	7.35	10.00	7.20	9.50	6.95	9.62½	6.95	9.25	7.02	9.15
1914	6.40	9.90	6.80	10.00	6.30	10.15	6.65	9.75	6.50	9.35
1915.										
January	6.65	7.35	....	....	6.15	7.40	6.50	7.40	6.00	7.95
February	6.70	7.15	....	....	6.30	7.25	6.35	7.02½	6.25	6.95
March	6.50	7.50	....	....	6.35	7.05	6.50	7.05	6.35	6.82
April	7.25	8.00	....	....	6.60	7.85	6.60	7.65	6.40	7.50
May	7.55	7.95	....	....	7.10	7.95	7.20	7.90	7.00	7.60
June	7.45	7.95	....	....	7.05	7.92½	7.20	7.85	6.75	7.60
July	7.35	8.00	....	....	6.15	8.10	7.00	7.80	5.90	7.65
August	7.10	7.75	....	....	5.90	8.00	6.30	7.70	5.90	7.60
September	7.35	8.45	....	....	6.15	8.45	7.10	8.25	6.00	8.95
October	7.00	8.70	....	....	6.25	8.95	6.90	8.65	6.75	8.90
November	6.35	7.70	....	....	5.80	7.75	6.20	7.50	6.00	7.35
December	6.25	7.25	....	....	5.80	7.05	6.00	6.75	4.00	8.00
Year	6.25	8.70	....	....	5.80	8.95	6.00	8.65	4.00	8.95

THE FEDERAL MEAT INSPECTION.

Some of the principal facts connected with the Federal meat inspection as administered by the Bureau of Animal Industry are shown in the following tables. The figures cover the annual totals for the fiscal years 1907 to 1914, inclusive, the former being the first year of operations under the meat-inspection law now in force. The data given comprise the number of establishments at which inspection is conducted; the number of animals of each species inspected at slaughter; the number of each species condemned, both wholly and in part, and the percentage condemned of each species and of all animals; the quantity of meat products prepared or processed under Federal supervision, and the quantity and percentage of the latter condemned.

Further details of the Federal meat inspection are published each year in the Annual Report of the Chief of the Bureau of Animal Industry.

TABLE 177.—*Number of establishments and total number of animals inspected at slaughter under Federal inspection annually, 1907 to 1915.*

Fiscal year.	Establishments.	Cattle.	Calves.	Swine.	Sheep.	Goats.	All animals.
1907	708	7,621,717	1,763,574	31,815,900	9,681,876	52,149	50,935,216
1908	787	7,116,275	1,995,487	35,113,077	9,702,545	45,953	53,973,337
1909	876	7,325,337	2,046,711	35,427,931	10,802,903	69,193	55,672,075
1910	919	7,962,189	2,295,099	27,656,021	11,149,937	115,811	49,179,057
1911	936	7,781,030	2,219,908	29,916,363	13,005,502	54,145	52,976,948
1912	940	7,532,005	2,242,929	34,966,378	14,208,724	63,983	59,014,019
1913	910	7,155,816	2,098,484	32,287,538	14,724,465	56,556	56,322,859
1914	893	6,724,117	1,814,904	33,289,705	14,958,834	121,827	56,909,387
1915	896	6,964,402	1,735,902	36,247,958	12,909,089	165,533	58,022,884

TABLE 178.—*Condemnation of animals at slaughter, 1907 to 1915.*

Fiscal year.	Cattle.			Calves.			Swine.			Sheep.			Goats.			All animals.		
	Whole.[1]	Part.	Per cent.[2]	Whole.[1]	Part.	Per cent.[2]	Whole.[1]	Part.	Per cent.[2]	Whole.[1]	Part.	Per cent.[2]	Whole.[1]	Part.	Per cent.[2]	Whole.[1]	Part.	Per cent.[2]
1907	28,497	93,174	1.60	6,462	245	0.38	176,280	436,161	1.92	9,676	296	0.10	43	....	0.08	220,958	529,876	1.47
1908	34,960	67,482	1.44	5,858	396	.31	234,608	636,589	2.48	8,186	198	.09	33	1	.07	283,645	704,666	1.83
1909	37,544	99,739	1.87	8,217	409	.42	183,926	799,300	2.77	10,825	179	.10	82	1	.12	240,594	899,628	2.05
1910	45,588	122,167	2.11	7,531	500	.35	123,421	726,829	3.07	11,156	24,714	.32	226	1	.19	187,922	874,211	2.16
1911	42,578	123,969	2.14	7,656	781	.38	138,977	877,528	3.40	10,821	7,394	.14	61	....	.11	200,093	1,009,672	2.28
1912	54,778	134,783	2.52	8,945	1,212	.45	276,512	323,992	1.72	16,304	3,871	.14	85	1	.13	356,624	463,859	1.39
1913	56,736	130,139	2.61	9,267	1,377	.51	319,131	373,993	2.15	18,612	939	.13	78	1	.14	403,824	506,449	1.62
1914	54,417	138,085	2.86	6,733	1,234	.44	352,921	422,275	2.33	21,402	1,564	.15	776	8	.64	436,249	563,166	1.76
1915	61,279	178,409	3.44	5,975	1,750	.45	328,667	464,217	2.19	18,298	298	.14	657	14	.41	414,876	644,688	1.83

[1] Includes carcasses passed for rendering into lard or tallow as well as those condemned outright.

[2] Includes both whole and parts; that is, the percentage given is of all carcasses the meat of which has been condemned in whole or in part.

TABLE 179.—*Quantity of meat and meat food products prepared, and quantity and percentage condemned, under Federal supervision annually, 1907 to 1915.*

Fiscal year.	Prepared or processed.	Condemned.	Percentage condemned.
	Pounds.	*Pounds.*	
1907	4,464,213,208	14,874,587	0.33
1908	5,958,298,364	43,344,206	.73
1909	6,791,437,032	24,679,754	.36
1910	6,223,964,593	19,031,808	.31
1911	6,934,233,214	21,073,577	.31
1912	7,279,558,956	18,096,587	.25
1913	7,094,809,809	18,851,930	.27
1914	7,033,295,975	19,135,469	.27
1915	7,533,070,002	18,780,122	.25

The principal items in the above table, in the order of magnitude, are: Cured pork, lard, lard substitute, sausage, and oleo products. The list includes a large number of less important items.

It should be understood that the above products are entirely separate and additional to the carcass inspection at time of slaughter. They are, in fact, reinspections of such portions of the carcass as have subsequently undergone some process of manufacture.

TABLE 180.—*Estimated value of farm products.*

[Based on prices at the farm.]

Year.	Total, gross.	Crops.		Animals and animal products.	
		Value.	Percentage of total.	Value.	Percentage of total.
1879 (census)	$2,212,540,927	....	....	....	....
1889 (census)	2,460,107,454	....	....	....	....
1897	3,960,821,685	$2,519,082,592	63.6	$1,441,739,093	36.4
1898	4,338,945,829	2,759,569,547	63.6	1,579,376,282	36.4
1899 (census)	4,717,069,973	2,998,704,412	63.6	1,718,365,561	36.4
1900	5,009,595,006	3,191,941,763	63.7	1,817,653,243	36.3
1901	5,302,120,039	3,385,179,114	63.8	1,916,940,925	36.2
1902	5,594,645,072	3,578,416,465	64.0	2,016,228,607	36.0
1903	5,887,170,104	3,771,653,816	64.1	2,115,516,288	35.9
1904	6,121,778,001	3,981,675,866	65.0	2,140,102,135	35.0
1905	6,273,997,362	4,012,652,758	64.0	2,261,344,604	36.0
1906	6,764,210,423	4,263,134,353	63.0	2,501,076,070	37.0
1907	7,487,988,622	4,761,111,839	63.6	2,726,876,783	36.4
1908	7,890,625,522	5,098,292,549	64.6	2,792,332,973	35.4
1909 (census)	8,558,161,223	5,487,161,223	64.1	3,071,000,000	35.9
1910	9,037,390,744	5,486,373,550	60.7	3,551,017,194	39.3
1911	8,819,174,959	5,562,058,150	63.1	3,257,116,809	36.9
1912	9,342,790,149	5,842,220,449	62.5	3,500,569,700	37.5
1913	9,849,512,511	6,132,758,962	62.3	3,716,753,549	37.7
1914	9,894,960,531	6,111,684,020	61.8	3,783,276,511	38.2
1915 preliminary	10,501,686,375	6,652,288,634	63.3	3,849,397,741	36.7

TABLE 181.—*Tonnage carried on railways in the United States, 1912–1914.*[1]

Product.	Year ending June 30—		
	1912	1913	1914
FARM PRODUCTS.			
Animal matter:	*Short tons.*	*Short tons.*	*Short tons.*
Animals, live	14,147,000	15,042,000	14,811,000
Packing-house products—			
Dressed meats	2,346,000	2,407,000	2,283,000
Hides (including leather)	1,139,000	1,121,000	1,081,000
Other packing-house products	2,360,000	2,345,000	2,375,000
Total packing-house products	5,845,000	5,873,000	5,739,000
Poultry (including game and fish)	768,000	847,000	915,000
Wool	407,000	398,000	409,000
Other animal matter	3,807,000	4,286,000	5,264,000
Total animal matter	24,974,000	26,446,000	27,138,000
Vegetable matter:			
Cotton	4,953,000	3,942,000	4,141,000
Fruit and vegetables	12,880,000	16,099,000	16,795,000
Grain and grain products—			
Grain	39,299,000	50,945,000	46,015,000
Grain products—			
Flour	8,629,000	9,523,000	9,697,000
Other grain products	7,081,000	7,830,000	7,824,000
Total grain and grain products	55,009,000	68,298,000	63,536,000
Hay	6,828,000	7,145,000	7,319,000
Sugar	3,233,000	3,599,000	3,926,000
Tobacco	982,000	1,091,000	1,071,000
Other vegetable matter	10,125,000	9,493,000	9,338,000
Total vegetable matter	94,010,000	109,667,000	106,126,000
Total farm products	118,984,000	136,113,000	133,264,000
OTHER FREIGHT.			
Products of mines	566,538,000	650,940,000	626,076,000
Products of forests	100,148,000	112,079,000	110,878,000
Manufactures	136,716,000	161,933,000	145,257,000
All other (including all freight in less than carload lots)	75,897,000	83,775,000	78,649,000
Total tonnage	998,283,000	1,144,840,000	1,094,124,000

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[1] Compiled from reports of the Interstate Commerce Commission. Original shipments only, excluding freight received by each railway from connecting railways and other carriers. Figures exclude the relatively small tonnage originating on railroads of Class III (roads having operating revenues of less than $100,000 a year).

IMPORTS AND EXPORTS OF AGRICULTURAL PRODUCTS.[1]

[Compiled from reports of the foreign commerce and navigation of the United States, U. S. Department of Commerce.]

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915.*

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
ANIMAL MATTER.						
Animals, live:						
Cattle—						
For breeding purposes, number	1,388	$234,489	718,352	$16,328,819	538,167	$17,513,175
Other ... number	420,261	6,406,179	150,016	2,367,899	....	....
Total cattle ... do.	421,649	6,640,668	868,368	18,696,718	538,167	17,513,175
Horses—						
For breeding purposes, number	5,713	1,653,713	4,406	1,476,905	1,849	473,138
Other ... number	4,295	472,162	28,613	1,128,124	10,803	504,242
Total horses ... do.	10,008	2,125,875	33,019	2,605,029	12,652	977,380
Sheep—						
For breeding purposes, number	388	8,903	221,836	516,912	153,317	533,967
Other ... number	15,040	81,118	1,883	15,492	....	....
Total sheep ... do.	15,428	90,021	223,719	532,404	153,317	533,967
All other, including fowls	....	729,227	....	2,877,960	....	3,254,559
Total live animals	....	9,585,791	....	24,712,111	....	22,279,081
Beeswax ... pounds	828,793	253,867	1,412,200	476,364	....	....
Dairy products:						
Butter ... do.	1,162,253	304,090	7,842,022	1,753,461	3,828,227	977,262
Cheese ... do.	49,387,944	9,185,184	63,784,313	11,010,693	50,138,520	9,370,048
Cream ... gallons	1,247,083	1,068,109	1,773,152	1,549,549	2,077,384	1,800,180
Milk	....	135,724	....	1,089,440	....	2,556,787
Total dairy products	....	10,693,107	....	15,403,143	....	14,704,277
Eggs ... dozens	1,367,224	205,832	6,014,955	1,089,164	3,046,631	438,760
Egg yolks ... pounds	228,305	36,892	3,420,412	504,619	....	....
Feathers and downs, crude:						
Ostrich	....	6,252,298	....	3,944,928	....	2,183,171
Other	....	1,985,084	....	926,735	....	319,452
Fibers, animal:						
Silk—						
Cocoons ... pounds	158,342	55,589	1,413	1,118	51,495	35,114
Raw, or as reeled from the cocoon ... pounds	26,049,472	82,147,523	28,594,672	97,828,243	26,030,925	80,531,785
Waste ... do.	5,893,741	2,711,605	5,949,744	3,100,664	4,970,254	2,563,658
Total silk ... do.	32,101,555	84,914,717	34,545,829	100,930,025	31,052,674	83,130,557
Wool, and hair of the camel, goat, alpaca, and like animals—						
Class 1, clothing ... pounds	67,238,715	15,422,920	125,088,761	30,681,759	222,017,420	52,008,509
Class 2, combing ... do.	16,886,446	4,266,327	18,839,698	4,906,967	15,054,694	3,735,158
Class 3, carpet ... do.	111,168,094	15,890,576	102,003,313	17,029,611	65,709,752	10,865,475
Hair of the Angora goat, alpaca, etc. ... pounds	(2)	(2)	1,717,097	572,430	5,301,563	1,633,426
Total wool ... do.	195,293,255	35,579,823	247,648,869	53,190,767	308,083,429	68,242,568
Total animal fibers, pounds	227,394,810	120,494,540	282,194,698	154,120,792	339,136,103	151,373,125

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[1] Forest products come within the scope of the Department of Agriculture and are therefore included in alphabetical order in these tables.

[2] Not stated.

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
ANIMAL MATTER—continued.						
Gelatin..............pounds..	1,170,082	$314,601	2,441,317	$738,731	2,714,229	$816,521
Glue..................do....	6,550,197	727,850	22,714,877	1,805,543	8,705,147	824,136
Honey...............gallons..	116,271	68,717	75,079	38,665	....	....
Packing-house products:						
Bladders, other than fish....	....	96,237	....	52,336	....	....
Blood, dried.................	....	80,145	....	391,816	....	....
Bones, cleaned...............	....	40,612	....	5,023	....	....
Bones, hoofs, and horns.....	....	885,893	....	1,061,466	....	911,473
Bristles—						
Crude, unsorted..pounds..	19,151	12,583	28,359	25,495	45,466	3,336
Sorted, bunched, or prepared........pounds..	3,559,433	3,491,980	3,408,796	3,170,974	4,016,594	3,609,748
Total bristles..pounds..	3,578,584	3,504,563	3,437,155	3,196,469	4,062,060	3,613,084
Grease......................	....	865,443	....	1,028,595	....	711,380
Gut.........................	....	139,120	....	122,733	....	....
Hair—						
Horse............pounds..	5,147,923	2,223,344	3,738,836	1,663,448	3,541,903	1,500,666
Other animal.......do....	11,348,597	1,099,730	10,507,680	1,051,698	8,148,570	744,187
Hide cuttings and other glue stock.....................	....	1,767,382	....	2,158,514	....	1,510,608
Hides and skins, other than furs—						
Buffalo hides, dry ....pounds..	16,234,751	2,790,009	14,492,943	3,073,717	12,422,803	2,325,243
Calfskins—						
Dry..............do....	39,974,383	15,092,017	27,767,882	11,582,807	15,678,046	4,166,617
Green or pickled..do....	54,584,752	11,202,956	54,635,708	11,799,146	30,288,655	6,552,157
Cattle hides—						
Dry..............do....	82,595,225	18,670,672	71,485,650	18,083,314	93,001,127	21,424,552
Green or pickled..do....	185,447,165	27,628,292	208,477,838	34,098,628	241,340,290	39,753,213
Goatskins—						
Dry..............do....	70,562,896	21,099,415	63,374,054	19,037,307	50,713,062	13,925,565
Green or pickled..do....	25,687,409	3,691,002	21,385,374	3,153,956	15,834,101	2,263,984
Horse and ass skins—						
Dry..............do....	10,978,605	2,234,581	7,619,625	1,619,178	5,425,173	1,253,001
Green or pickled..do....	8,447,909	941,371	4,645,213	514,833	3,800,451	399,682
Kangaroo...........do....	1,097,038	719,188	1,328,668	898,087	769,125	427,127
Sheepskins—[1]						
Dry..............do....	31,132,037	6,429,936	29,338,146	6,165,947	20,986,018	3,963,438
Green or pickled..do....	40,652,682	5,965,008	40,738,679	6,427,270	37,833,520	6,021,432
Other..............do....	4,801,838	921,727	15,780,906	3,835,591	10,225,362	1,701,095
Total hides and skins, pounds...............	572,196,690	117,386,174	561,070,686	120,289,781	538,317,733	104,177,106
Meat—						
Cured—						
Bacon and hams, pounds...............	(2)	(2)	2,008,960	383,669	7,542,446	1,161,090
Meat prepared or preserved..............	....	(2)	....	1,676,360	....	1,193,268
Sausage, bologna, pounds...............	728,469	157,871	730,326	186,824	209,484	53,660
Fresh—						
Beef and veal..pounds..	(2)	(2)	180,137,183	15,423,911	184,490,759	16,942,661
Mutton and lamb.do....	(2)	(2)	12,710,905	1,114,730	15,528,855	1,474,422
Pork..............do....	(2)	(2)	4,624,799	540,801	16,250,514	2,011,065
Other, including meat extracts............	....	1,268,957	....	1,075,849	....	2,561,906
Total meat............	....	1,426,828	....	20,402,144	....	25,398,072
Oleo stearin........pounds..	9,511,134	967,000	5,243,553	459,989	2,424,009	209,545
Rennets......................	....	129,557	....	129,720	....	....
Sausage casings....pounds..	4,569,944	2,476,082	(2)	2,955,657	(2)	2,944,501
Total packing-house products..............	....	133,088,110	....	154,969,389	....	....
Total animal matter.....	....	283,706,689	....	358,730,184	....	....

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[1] Except sheepskins with the wool on.

[2] Not stated.

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER.						
Argols, or wine lees...pounds	29,479,119	$2,621,632	29,793,011	$3,228,674	28,624,554	$3,094,380
Breadstuffs. (*See* Grain and grain products.)						
Broom corn...long tons	187	14,720	1,272	141,730	129	15,912
Cocoa and chocolate:						
Cocoa—						
Crude, and leaves and shells of...pounds	140,039,172	17,389,042	176,267,646	20,797,790	192,306,634	22,893,241
Chocolate...do	3,470,680	787,678	3,096,445	706,193	2,427,561	584,915
Total cocoa and chocolate...pounds	143,509,852	18,176,720	179,364,091	21,503,983	194,734,195	23,478,156
Coffee...do	863,130,757	118,963,209	1,001,528,317	110,725,392	1,118,690,524	106,765,644
Coffee substitutes:						
Chicory root—						
Raw, unground...pounds	2,205,813	33,091	(1)	(1)	...	...
Roasted, ground, or otherwise prepared, pounds	519,179	21,182	2,292,430	47,882	...	...
Total chicory root, pounds	2,724,992	54,273	2,292,430	47,882	...	...
Other...pounds	146,897	22,831	188,446	21,498	...	...
Total coffee substitutes, pounds	2,871,889	77,104	2,480,876	69,380	...	...
Curry and curry powder	...	11,199	...	11,861	...	...
Fibers, vegetable:						
Cotton...pounds	121,852,016	22,987,318	123,346,899	19,456,588	155,204,579	23,208,960
Flax...long tons	12,421	3,950,020	9,885	2,870,274	4,694	1,875,701
Hemp...do	7,663	1,484,116	8,822	1,564,483	5,310	1,156,129
Istle, or Tampico fiber...do	9,573	923,104	10,660	1,036,431	12,300	1,216,466
Jute and jute butts...do	125,389	9,280,565	106,033	11,174,028	83,140	4,677,334
Kapoc...do	2,842	809,001	1,827	441,109	3,860	767,509
Manila...do	73,823	12,629,693	49,688	9,779,539	51,081	9,200,793
New Zealand flax...do	7,827	917,166	6,171	716,953	2,944	319,936
Sisal grass...do	153,869	17,803,819	215,547	25,860,729	185,764	20,572,347
Other...do	13,691	1,281,175	9,799	906,449	7,986	633,802
Total vegetable fibers	...	72,065,977	...	73,806,583	...	63,628,977
Flowers, natural	...	13,376	...	24,540	...	...
Forest products:						
Charcoal	...	25,028	...	60,634	...	...
Cinchona bark...pounds	3,553,239	357,490	3,648,868	464,412	3,944,549	561,106
Cork wood or cork bark	...	3,152,070	...	3,851,794	...	2,762,895
Dyewoods, and extracts of—						
Dyewoods—						
Logwood...long tons	37,027	476,916	30,062	378,064	55,059	742,234
Other...do	3,973	55,843	7,663	108,928	13,361	197,122
Total dyewoods...do	41,000	532,759	37,725	486,992	68,420	939,356
Extracts and decoctions of...pounds	9,481,275	365,149	8,810,040	306,934	6,191,232	202,675
Total dyewoods, and extracts of	...	897,908	...	793,926	...	1,142,031
Guayule plant...pounds	294,335	14,725	...	...	...	...
Gums—						
Camphor—						
Crude...do	3,709,264	1,007,301	3,476,908	929,715	3,729,207	1,003,261
Refined...do	491,256	162,557	566,106	182,790	1,170,666	417,861
Chicle...do	13,758,592	5,282,722	8,040,891	3,012,458	6,499,664	2,459,810

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[1] Not stated.

Table 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Forest products—Continued.						
Gums—Continued.						
Copal, kauri, and damar, pounds	28,573,201	$2,519,519	32,693,412	$3,354,679	27,450,545	$2,821,346
Gambier, or terra japonica, pounds	17,064,998	790,081	14,936,129	571,067	14,169,490	542,200
India rubber, gutta percha, etc.—						
Balata.........pounds	1,318,598	766,772	1,533,024	793,126	2,472,224	963,384
Guayule gum.....do	10,218,191	4,345,088	1,475,804	607,076	5,111,849	1,441,367
Gutta-joolatong, or East Indian gum..pounds	45,345,338	2,174,441	24,926,571	1,155,402	14,851,264	731,995
Gutta-percha.....do	480,853	167,313	1,846,109	323,567	1,618,214	230,750
India rubber......do	113,384,359	90,170,316	131,995,742	71,219,851	172,068,428	83,030,269
Total India rubber, etc.........pounds	170,747,339	97,623,930	161,777,250	74,099,022	196,121,979	86,397,765
Shellac...........pounds	21,912,015	3,046,919	16,719,756	2,689,269	24,158,363	3,016,472
Other	...	2,359,796	...	2,001,631	...	1,581,704
Total gums	...	112,792,825	...	86,840,631	...	98,240,419
Ivory, vegetable...pounds	29,656,278	977,525	27,135,406	881,354	21,059,746	510,677
Naval stores:						
Tar and pitch (of wood), barrels	287	5,611	561	7,946	...	...
Turpentine, spirits of, gallons	56,855	19,667	68,966	28,818	...	...
Total naval stores	...	25,278	...	36,764	...	...
Palm leaf, natural	...	17,214	...	14,044	...	...
Tanning materials:						
Mangrove bark..long tons	15,187	336,136	7,689	196,891	8,096	218,952
Quebracho, extract of, pounds	78,833,466	2,005,770	93,329,087	2,543,302	120,450,283	3,676,749
Quebracho wood..l. tons	102,769	1,300,126	73,956	900,880	54,955	753,981
Sumac, ground...pounds	14,489,776	297,506	10,770,400	258,738	13,165,182	323,448
Other	...	390,056	...	468,230	...	370,133
Total tanning materials	...	4,329,594	...	4,368,041	...	5,343,263
Wood, not elsewhere specified—						
Brier root or brierwood and ivy or laurel root	...	313,189	...	241,493	...	334,552
Chair cane or reed	...	620,893	...	451,099	...	169,181
Cabinet woods, unsawed—						
Cedar...........M feet	19,092	1,094,048	17,285	982,152	15,875	947,313
Mahogany.........do	66,318	4,839,625	70,470	4,925,126	42,325	2,640,705
Other	...	1,441,541	...	1,217,410	...	683,757
Total cabinet woods	...	7,375,214	...	7,124,688	...	4,271,775
Logs and round timber, M feet	140,876	1,506,235	148,938	1,657,605	131,544	1,263,641
Lumber—						
Boards, deals, planks, and other sawed lumber........M feet	1,091,649	18,969,776	931,408	17,817,550	939,322	17,810,861
Laths...............M	712,119	1,905,254	564,778	1,613,586	672,023	1,916,214
Shingles............M	560,297	1,399,751	895,038	2,190,170	1,487,116	3,104,698
Other	...	885,888	...	815,279	...	621,097
Total lumber	...	23,160,669	...	22,436,585	...	23,452,870

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Forest products—Continued.						
Wood, not elsewhere specified—Continued.						
Pulp wood—						
Peeled...........cords..	618,124	$3,843,950	630,863	$4,062,835	551,239	$3,516,460
Rossed...........do....	258,455	2,183,785	255,844	2,118,910	187,047	1,597,750
Rough...........do....	160,315	927,217	186,316	1,063,721	247,400	1,458,629
Rattan and reeds.........		1,040,121		1,210,390		771,628
All other..................		776,198		559,036		511,682
Total wood, n. e. s.......		41,747,471		40,926,362		37,348,168
Wood pulp—						
Chemical—						
Bleached....pounds..	163,782,137	3,726,685	177,833,052	4,153,036	225,243,200	5,256,724
Unbleached....do....	598,574,507	9,435,942	605,926,470	10,136,707	672,255,360	11,483,268
Mechanical.......do....	364,168,563	3,002,689	354,967,673	2,733,595	419,446,720	3,141,119
Total wood pulp..do..	1,126,525,207	16,165,316	1,138,727,195	17,023,338	1,316,945,280	19,881,111
Total forest products..		180,502,444		155,261,300		
Fruits:						
Fresh or dried—						
Bananas........bunches..	42,357,109	14,484,258	48,683,592	16,397,884	41,091,585	13,512,960
Currants.........pounds..	30,843,735	1,306,410	32,033,177	1,233,228	30,350,527	1,209,273
Dates..............do....	34,304,951	660,311	34,073,608	679,527	24,949,374	420,203
Figs.................do....	16,837,819	944,317	19,284,868	941,207	20,779,730	1,024,495
Grapes........cubic feet..	1,135,942	1,359,415	1,334,163	1,599,969	1,323,928	1,523,547
Lemons.........pounds..	151,416,412	4,300,266	(1)	5,981,635	(1)	3,730,075
Olives...........gallons..	3,946,076	1,896,982	5,316,364	2,292,837	3,622,275	1,607,903
Oranges.........pounds..	12,252,960	233,760	(1)	93,472	(1)	50,022
Pineapples................		1,319,006		1,287,862		1,309,750
Raisins..........pounds..	2,579,705	241,630	4,554,549	309,511	2,808,806	238,958
Other.....................		1,115,330		1,710,009		1,431,242
Total fresh or dried.....		27,861,685		32,527,141		26,058,428
Prepared or preserved.......		795,399		1,111,193		1,022,968
Total fruits.............		28,657,084		33,638,334		27,081,396
Ginger, preserved or pickled, pounds....................	551,320	42,061	478,058	36,434		
Grain and grain products:						
Grain—						
Corn.............bushels..	903,062	491,079	12,367,369	7,917,243	9,897,939	6,083,385
Oats.................do....	723,899	289,364	22,273,624	7,885,837	630,722	290,180
Wheat.............do....	798,028	559,559	1,978,937	1,761,995	426,469	469,847
Total grain.......do....	2,424,989	1,340,002	36,619,930	17,565,075	10,955,130	6,843,412
Grain products—						
Bread and biscuit.........		255,416		415,318		266,079
Macaroni, vermicelli, etc., pounds................	106,500,752	4,913,624	126,128,621	5,698,783	56,542,480	3,061,337
Malt............bushels..	10,419	15,121	13,472	16,367		
Meal and flour—						
Wheat flour....barrels..	107,558	453,681	89,911	363,855	64,200	309,742
Other.....................		1,754,842		3,382,879		2,037,786
Total grain products..		7,392,684		9,877,202		5,674,944
Total grain and grain products............		8,732,686		27,442,277		12,518,356
Hay...............long tons..	156,323	1,514,311	170,786	1,634,390	20,187	228,906
Hops...............pounds..	8,494,144	2,852,865	5,382,025	2,790,516	11,651,332	2,778,735
Indigo..................do....	7,712,508	1,102,897	8,125,211	1,093,226	7,975,709	1,596,978
Licorice root............do....	105,116,227	1,806,066	115,636,131	2,047,192	65,958,501	1,252,989

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[1] Not stated.

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Liquors, alcoholic:						
Distilled spirits—						
Brandy.......proof galls..	610,358	$1,647,277	602,563	$1,617,483	400,203	$1,035,562
Cordials, liqueurs, etc., proof galls..............	575,290	1,233,700	515,575	1,063,267	408,100	858,599
Gin...........proof galls..	974,776	999,921	1,055,885	1,017,569	742,439	717,131
Whisky.............do....	1,541,663	3,153,640	1,571,870	3,186,627	1,327,759	2,641,617
Other...............do....	378,623	339,619	414,950	378,902	411,236	317,413
Total distilled spirits, proof galls............	4,080,710	7,374,157	4,160,843	7,263,848	3,289,737	5,570,322
Malt liquors—						
Bottled...........gallons..	1,452,728	1,372,823	1,213,320	1,152,598	799,946	768,893
Unbottled..........do....	6,245,922	1,917,442	5,963,913	1,814,431	2,551,158	818,505
Total malt liquors.do....	7,698,650	3,290,265	7,177,233	2,967,029	3,351,104	1,587,398
Wines—						
Champagne and other sparkling...doz. quarts..	280,828	4,636,191	270,002	4,418,958	114,630	2,004,680
Still wines—						
Bottled..dozen quarts..	678,131	2,724,471	728,303	2,940,277	627,067	2,273,916
Unbottled......gallons..	4,427,130	2,718,045	5,220,380	2,757,434	3,860,273	1,968,587
Total still wines.......	....	5,442,516	....	5,697,711	....	4,242,503
Total wines...........	....	10,078,707	....	10,116,669	....	6,247,183
Total alcoholic liquors.	....	20,743,129	....	20,347,546	....	13,404,903
Malt, barley. (*See* Grain and grain products.)						
Malt extract, fluid and solid...	....	12,040	....	16,566	....	....
Malt liquors. (*See* Liquors, alcoholic.)						
Nursery stock:						
Plants, trees, shrubs, and vines—						
Fruit plants, tropical and semitropical, for propagation, etc...............	....	5,847	....	(1)	....	(1)
Bulbs, bulbous roots or corms, cultivated for their flowers or foliage M......................	288,646	1,823,307	216,138	2,092,139	255,700	2,375,316
Other....................	....	1,379,913	....	1,514,669	....	1,373,350
Total nursery stock.....	....	3,209,067	....	3,606,808	....	3,748,666
Nuts:						
Almonds—						
Shelled..........pounds..	13,078,771	3,137,104	13,307,631	4,040,785	12,208,551	3,100,428
Unshelled..........do....	2,592,187	207,554	5,730,774	638,504	4,902,713	499,151
Coconuts, unshelled............	....	1,781,377	....	2,133,416	....	1,593,517
Coconut meat, broken, or copra—						
Not shredded, desiccated, or prepared....pounds..	34,267,811	1,531,820	45,437,155	2,395,013	90,546,827	3,397,477
Shredded, desiccated, or prepared.......pounds..	6,602,556	493,768	10,297,554	807,198	5,936,212	432,993
Cream and Brazil..bushels..	11,933,445	668,534	20,423,497	1,075,907	16,272,581	878,272
Filberts—						
Shelled..........pounds..	1,946,488	281,460	1,643,507	261,785	1,973,192	275,026
Unshelled..........do....	8,480,818	614,023	10,992,972	834,078	11,717,370	949,099
Peanuts--						
Shelled.............do....	6,801,415	312,397	27,077,158	1,239,227	9,643,691	333,980
Unshelled...........do....	12,281,580	470,390	17,472,631	660,010	14,540,982	490,779
Walnuts –						
Shelled.............do....	10,371,128	2,206,261	8,928,029	2,042,680	11,107,490	2,322,754
Unshelled..........do....	16,291,313	1,293,720	28,267,699	2,296,801	22,338,348	1,661,473
Other..........................	....	981,497	....	1,463,197	....	884,850
Total nuts.............	....	13,979,905	....	19,888,601	....	16,819,799
Oil cake.............pounds..	11,047,399	141,137	11,656,803	120,078	....	....

[1] Not stated.

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Oils, vegetable:						
Fixed or expressed—						
Cocoa butter or butterine, pounds	3,603,332	$992,358	2,838,761	$793,451	150,378	$42,185
Coconut oil......pounds..	50,504,192	4,183,036	74,386,213	6,703,942	63,135,428	5,430,581
Cottonseed..........do....	3,383,511	185,383	17,293,201	1,044,834	15,312,361	728,961
Flaxseed or linseed, gallons	173,690	111,228	192,282	91,555	535,291	248,403
Nut oil, or oil of nuts, n. e. s.—						
Chinese nut....gallons..	5,996,666	2,733,884	4,932,444	1,962,389	4,940,330	1,733,264
Peanut...........do....	1,195,683	820,763	1,337,136	918,614	852,905	581,150
Olive for mechanical purposes...........gallons..	619,356	407,074	763,924	477,210	653,064	450,001
Olive, salad.........do....	5,221,001	6,739,172	6,217,560	7,916,980	6,710,967	8,225,485
Palm oil.........pounds..	50,228,706	3,351,868	58,040,202	3,858,001	31,500,661	2,025,060
Palm kernel........do....	23,569,031	1,868,658	34,327,600	3,087,343	4,905,852	446,763
Rapeseed........gallons..	1,549,728	779,400	1,464,265	704,655	1,498,642	786,485
Soy bean........pounds..	12,340,185	635,888	16,360,452	830,790	19,206,521	899,819
Other....................	....	381,801	....	439,009	....	202,950
Total fixed or expressed.	....	23,190,513	....	28,828,773	....	21,801,107
Volatile or essential—						
Lemon...........pounds..	381,093	744,658	385,959	858,220	577,595	600,642
Other....................	....	4,194,827	....	2,633,789	....	2,370,364
Total volatile or essential	....	4,939,485	....	3,492,009	....	2,971,006
Total vegetable oils.....	....	28,129,998	....	32,320,782	....	24,772,113
Opium, crude........pounds..	508,433	2,565,965	455,200	1,810,429	484,027	2,445,005
Rice, rice meal, etc.:						
Rice—						
Cleaned..........pounds..	32,715,479	1,203,005	95,503,998	3,017,108	112,118,326	2,655,739
Uncleaned, including paddy.............pounds..	51,779,326	1,900,081	54,784,051	1,917,658	90,241,834	2,340,968
Rice flour, rice meal, and broken rice..pounds..	137,608,742	2,813,778	139,906,868	2,538,941	74,831,312	1,307,509
Total rice, etc.....do....	222,103,547	5,916,864	290,194,917	7,473,707	277,191,472	6,304,216
Sago, tapioca, etc.............	....	2,187,217	....	1,641,540	....	1,434,219
Seeds:						
Castor beans or seeds bushels....................	887,747	985,598	1,030,543	1,139,311	924,604	993,577
Clover—						
Red.............pounds..	6,072,842	987,702	6,764,218	835,691	8,749,757	1,072,468
Other...............do....	15,151,715	1,508,011	23,343,431	2,047,941	15,406,954	1,162,810
Flaxseed or linseed .bushels..	5,294,296	8,127,774	8,653,235	10,571,410	10,666,215	13,374,536
Grass seed, n. e. s...pounds..	25,452,076	1,637 244	31 937,701	1,634,627	34,690,259	1,384,372
Sugar beet...........do....	14,768,207	1,064,392	10,293,898	799,525	15,882,661	1,409,973
Other.....................	....	3,114,812	....	3,055,679	....	3,657,084
Total seeds.............	....	17,425,533	....	20,084,184	....	23,054,820
Spices:						
Unground—						
Cassia, or cassia vera, pounds..................	6,853,915	535,974	6,771,901	404,853	5,786,324	357,071
Ginger root, not preserved, pounds..................	7,756,090	399,270	3,771,086	171,250	3,127,722	150,515
Pepper, black or white, pounds..................	27,562,361	2,852,665	24,173,621	2,427,927	30,268,384	3,086,782
Other...........pounds..	16,062,861	1,576,462	2,896,823	309,184	....	....
Total unground, pounds...............	58,235,227	5,364,371	37,613,431	3,313,214	39,182,430	3,594,368
Ground............pounds..	6,990,174	822,765	18,961,068	2,282,295	20,902,214	2,332,604
Total spices.......do....	65,225,401	6,187,136	56,574,499	5,595,509	60,084,644	5,926,972

TABLE 182.—*Agricultural imports of the United States during the 3 years ending June 30, 1915*—Continued.

Article imported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Spirits, distilled. (*See* Liquors, alcoholic.)						
Starch..........pounds..	16,710,498	$457,784	15,518,434	$408,922	13,233,283	$343,800
Straw and grass....long tons..	3,553	19,079	6,060	33,499	....	....
Sugar and molasses:						
Molasses..........gallons..	33,926,521	1,456,350	51,410,271	1,744,719	70,839,623	1,963,505
Sugar—						
Raw—						
Beet..........pounds..	182,647,582	4,169,523	2,367,708	70,829	877,623	29,386
Cane..........do....	4,554,049,872	99,293,354	5,061,564,621	101,365,561	5,418,630,482	173,837,646
Maple sugar and sirup, pounds..........	(1)	(1)	2,095,983	163,047	1,473,762	125,571
Total raw....pounds..	4,736,697,454	103,462,877	5,066,028,312	101,599,437	5,420,981,867	173,992,603
Refined..........do....	3,344,034	176,946	793,561	49,938	....	....
Total sugar.....do....	4,740,041,488	103,639,823	5,066,821,873	101,649,375	5,420,981,867	173,992,603
Total sugar and molasses..........	....	105,096,173	....	103,394,094	....	175,956,108
Tea..........pounds..	94,812,800	17,433,688	91,130,815	16,735,302	96,987,942	17,512,619
Tea, waste, etc., for manufacturing..........pounds..	7,053,550	211,541	5,874,308	194,293	....	....
Teazels..........	....	27,155	....	24,310	....	....
Tobacco:						
Leaf—						
Wrapper..........pounds..	6,398,782	8,242,212	6,092,787	7,785,387	7,241,178	9,267,044
Filler and other leaf.do....	61,133,963	27,691,361	54,047,436	27,247,259	38,523,550	17,889,621
Stems..........do....	444,373	4,938	1,034,528	5,874	....	....
Total tobacco.....do....	67,977,118	35,938,511	61,174,751	35,038,520	45,764,728	27,156,665
Vanilla beans. do....	1,049,497	2,641,573	898,100	2,277,675	888,569	1,863,515
Vegetables:						
Fresh and dried—						
Beans..........bushels..	1,048,297	1,938,105	1,634,070	2,955,663	905,647	1,461,917
Onions..........do....	789,458	481,756	1,114,811	909,204	829,177	657,374
Peas, dried..........do....	1,134,346	1,835,775	866,488	1,849,274	546,903	1,305,633
Potatoes..........do....	327,230	303,214	3,645,993	1,763,782	270,942	274,915
Other..........	....	1,410,354	....	1,630,113	....	1,350,101
Total fresh and dried....	....	5,969,204	....	9,108,036	....	5,049,940
Prepared or preserved—						
Mushrooms......pounds..	8,123,373	1,172,376	9,188,177	1,306,818	6,195,819	885,653
Pickles and sauces..........	....	1,123,108	....	1,246,249	....	839,916
Other..........	....	3,094,073	....	3,472,432	....	2,554,223
Total prepared or preserved..........	....	5,389,557	....	6,025,499	....	4,279,792
Total vegetables..........	....	11,358,761	....	15,133,535	....	9,329,732
Vinegar..........gallons..	295,939	85,090	311,643	94,597	....	....
Wafers, unmedicated..........	....	28,491	....	32,797	....	....
Wax, vegetable......pounds..	5,652,995	1,146,077	4,255,686	1,049,126	5,634,809	1,012,402
Wines. (*See* Liquors, alcoholic.)						
Total vegetable matter, including forest products..........	....	712,096,265	....	720,778,232	....	....
Total vegetable matter, excluding forest products..........	....	531,593,821	....	565,516,932	....	....
Total agricultural imports, including forest products..........	....	995,802,954	....	1,079,508,416	....	....
Total agricultural imports, excluding forest products..........	....	815,300,510	....	924,247,116	....	....

[1] Included in "Refined."

TABLE 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915.*

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
ANIMAL MATTER.						
Animals, live:						
Cattle.............number..	24,714	$1,177,199	18,376	$647,288	5,484	$702,847
Horses...............do....	28,707	3,960,102	22,776	3,388,819	289,340	64,046,534
Mules...............do....	4,744	733,795	4,883	690,974	65,788	12,726,143
Sheep...............do....	187,132	605,725	152,600	534,543	47,213	182,278
Swine...............do....	15,332	151,747	10,122	133,751	7,799	93,067
Other (including fowls)......	....	451,554	....	408,284	....	202,817
Total live animals.......	....	7,080,122	....	5,803,659	....	77,953,686
Beeswax............pounds..	116,296	33,131	96,215	27,292	....	....
Dairy products:						
Butter...............do....	3,585,600	872,804	3,693,597	877,453	9,850,704	2,392,480
Cheese...............do....	2,599,058	441,186	2,427,577	414,124	54,069,917	8,247,174
Milk—						
Condensed.........do....	16,525,918	1,432,848	16,209,082	1,341,140	37,235,627	3,066,642
Other, including cream ...	....	474,055	....	333,217	....	343,583
Total dairy products, pounds..............	....	3,220,893	....	2,965,934	....	14,049,879
Eggs.................dozens..	20,409,390	4,391,653	16,148,849	3,734,087	20,784,424	5,003,764
Egg yolks.....................	....	67,854	....	47,968	....	....
Feathers......................	....	690,612	....	640,020	....	281,806
Fibers, animal:						
Silk waste.........pounds..	37,547	9,704	27,597	8,178	....	....
Wool...............do....	77,047	22,625	335,348	124,127	....	....
Total animal fibers......	114,594	32,329	362,945	132,305	....	....
Glue...............pounds..	2,544,942	276,619	2,351,773	258,611	2,874,225	298,136
Honey......................	....	182,252	....	135,669	....	....
Packing-house products:						
Beef—						
Canned.........pounds..	6,840,348	857,826	3,464,733	461,901	75,274,608	11,974,673
Cured or pickled....do....	25,856,919	2,489,965	23,265,974	2,289,516	31,874,743	3,382,670
Fresh..............do....	7,362,388	902,149	6,394,404	788,793	170,440,934	21,731,633
Oils—Oleo oil.......do....	92,849,757	10,866,253	97,017,065	10,156,665	80,481,946	9,341,188
Oleomargarine......do....	2,987,582	311,485	2,532,821	263,453	5,252,183	617,035
Tallow.............do....	30,586,300	1,910,439	15,812,831	1,002,011	20,239,988	1,386,445
Total beef.........do....	166,483,294	17,338,117	148,487,828	14,962,339	383,564,402	48,433,644
Bones, hoofs, horns, and horn tips, strips and waste.	....	77,576	....	47,651	....	....
Grease, grease scraps, and all soap stock—						
Lubricating................	....	2,339,015	....	2,394,918	....	2,384,395
Soap stock................	....	4,844,342	....	5,046,959	....	4,266,097
Hair......................	....	1,449,157	....	1,085,038	....	1,402,189
Hides and skins, other than furs—						
Calfskins.........pounds..	923,922	155,499	323,417	69,515	1,074,529	248,547
Cattle hides.........do....	17,971,809	2,589,603	12,524,901	1,933,705	21,135,730	4,013,172
Horse...............do....	5,472,832	456,879	5,742,855	610,456	605,054	67,798
Other...............do....	1,791,775	247,943	1,275,962	193,577	2,107,867	356,207
Total.............do....	26,160,338	3,449,924	19,867,135	2,807,253	24,923,180	4,685,724
Hoofs, horns, and horn tips, strips, and waste..........	....	102,705	....	61,180	....	16,182
Lard compounds...pounds..	67,456,832	5,915,759	58,303,564	5,489,139	69,980,614	6,045,752
Meat, canned, n. e. s........	....	1,086,463	....	1,350,218	....	2,192,464
Mutton............pounds..	5,266,019	591,969	4,685,496	523,023	3,877,413	448,221
Oils, animal, n. e. s.gallons..	1,603,325	970,717	891,035	609,294	559,197	405,635
Pork—						
Canned.........pounds..	4,148,343	565,039	3,074,303	492,822	4,644,418	745,928

TABLE 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915*—Continued.

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
ANIMAL MATTER—continued.						
Packing-house products—Con.						
Pork—Continued.						
Cured—						
Bacon.........pounds..	200,993,584	$25,647,167	193,964,252	$25,879,056	346,718,227	$47,326,129
Hams and shoulders, pounds..............	159,544,687	21,641,386	165,881,791	23,767,447	203,701,114	29,049,931
Salted or pickled, pounds..............	53,749,023	5,699,136	45,543,085	4,896,574	45,655,574	4,911,307
Total cured pounds..	414,287,294	52,987,689	405,389,128	54,543,077	596,074,915	81,287,367
Fresh..............do....	2,457,997	310,574	2,668,020	359,181	3,908,193	473,801
Lard...............do....	519,025,384	58,187,336	481,457,792	54,402,911	475,531,908	52,440,133
Lard, neutral.......do....	44,777,692	5,129,899	29,323,786	3,270,236	26,021,054	3,022,321
Oils—lard oil.....gallons..	154,983	113,665	111,199	87,364	184,019	111,637
Total pork	....	117,294,202	....	113,155,591	....	138,081,187
Sausage and sausage meats—						
Canned..........pounds..	1,117,400	145,440	1,446,582	202,120	1,821,958	307,726
Other..............do....	6,893,918	940,305	4,562,983	755,794	5,183,525	845,661
Sausage casings.......do....	26,203,391	3,901,428	30.092,206	4,077,882	30,818,551	4,859,815
Stearin...............do....	3,744,886	323,376	2,724,181	234,121	12,750,907	1,308,665
All other....................	....	1,935,860	....	1,685,351	....	2,403,842
Total packing-house products.............	....	162,706,355	....	154,487,871	....	....
Poultry and game............	....	1,303,379	....	913,632	....	1,187,771
Silk waste. (*See* Fibers, animal.)						
Wool. (*See* Fibers, animal.)						
Total animal matter....	....	179,985,199	....	169,147,048	....	....
VEGETABLE MATTER.						
Breadstuffs. (*See* Grain and grain products.)						
Broom corn........long tons..	4,113	389,219	2,959	327,426	3,764	368,051
Cocoa, ground or prepared, and chocolate...............	....	376,336	....	336,940	....	1,934,166
Coffee:						
Green or raw......pounds..	50,723,958	8,679,422	52,649,233	8,550,642	49,177,146	6,841,575
Roasted or prepared..do....	1,469,043	331,370	1,815,835	427,009	2,421,664	461,030
Total coffee.......do....	52,193,001	9,010,792	54,465,068	8,977,651	51,598,810	7,302,605
Cotton:						
Sea island........bales....	11,843	1,078,274	19,186	1,619,847	6,158	484,465
Sea island........pounds..	4,412,470		7,420,455		2,437,602	
Upland..........bales....	8,712,729	546,278,921	9,146,114	608,855,454	8,201,189	372,068,490
Upland..........pounds..	4,557,883,205		4,753,520,083		4,288,295,926	
Linters..........bales....	(1)	(1)	(1)	(1)	218,950	3,665,017
Linters..........pounds..					112,844,971	
Total cotton......do....	4,562,295,675	547,357,195	4,760,940,538	610,475,301	4,403,578,499	376,217,972
Flavoring extracts and fruit juices....................	....	133,990	....	106,892	....	....
Flowers, cut................	....	101,036	....	121,287	....	....
Forest products:						
Bark, and extract of, for tanning—						
Bark...........long tons..	1,683	46,499	1,212	26,939	....	....
Bark, extracts of..........	....	524,063	....	639,941	....	2,226,457
Total bark, etc..........	....	570,562	....	666,880	....	....
Charcoal....................	....	73,030	....	81,997	....	....
Moss.......................	....	69,609	....	51,006	....	....

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[1] Included in "Upland."

TABLE 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915*—Continued.

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Forest products—Continued.						
Naval stores—						
Rosin............barrels..	2,806,046	$17,359,145	2,417,950	$11,217,316	1,372,316	$6,220,321
Tar, turpentine, and pitch..........barrels..	62,346	317,491	351,353	568,891	239,661	430,612
Turpentine, spirits of, gallons.................	21,039,597	8,794,656	18,900,704	8,095,958	9,464,120	4,476,306
Total naval stores.....	....	26,471,292	....	19,882,165	....	11,127,239
Wood—						
Logs—						
Hickory.........M feet..	8,293	309,896	8,425	297,613	2,020	73,786
Oak...............do....	3,139	125,818	1,872	63,850	226	10,563
Walnut...........do....	12,711	692,665	6,951	382,059	1,090	78,338
Other.............do....	149,381	3,095,029	120,819	2,512,501	41,175	720,836
Total...........do....	173,524	4,223,408	138,067	3,256,023	44,511	883,523
Lumber—						
Boards, deals, and planks—						
Cypress.......M feet..	14,788	455,649	14,098	420,982	10,078	319,065
Fir...............do....	665,295	8,650,747	680,380	8,709,140	368,886	4,251,620
Gum.............do....	84,520	2,580,286	70,714	2,164,017	24,588	715,756
Oak..............do....	287,855	13,377,912	231,308	10,644,310	97,397	4,870,864
Pine—						
White.........do....	49,283	1,661,396	43,878	1,606,864	18,398	662,786
Yellow—						
Pitch pine..do....	869,737	18,596,796	911,223	19,521,719	403,254	7,565,272
Short-leaf pine, M feet............	47,517	1,086,503	22,453	634,103	5,261	160,219
Other pine, M feet............	228,365	5,211,158	127,289	3,001,399	49,716	1,123,212
Poplar........M feet..	37,652	1,719,274	30,860	1,448,622	19,891	962,248
Redwood.......do....	51,903	1,355,340	67,155	1,917,315	36,419	1,102,532
Spruce...........do....	20,020	619,837	18,105	557,838	15,610	462,087
Other............do....	193,373	6,661,021	187,833	6,948,239	79,707	2,925,984
Total.........do....	2,550,308	61,975,919	2,405,296	57,574,548	1,129,205	25,121,645
Joists and scantling, M feet................	25,925	479,969	12,143	206,919	6,007	103,456
Railroad ties..number..	5,416,713	2,616,563	5,123,004	2,564,543	3,874,298	2,036,200
Shingles..............M..	106,903	261,058	46,964	112,463	11,291	30,578
Shooks—						
Box.........number..	13,389,638	1,366,649	11,149,532	1,270,477	11,692,495	1,303,127
Other...........do....	1,710,095	3,037,943	867,805	1,542,272	620,043	1,024,093
Total shooks..do....	15,099,733	4,404,592	12,017,337	2,812,749	12,312,538	2,327,220
Staves and heading—						
Heading................	....	346,258	....	332,662	....	258,670
Staves......number..	89,005,624	7,325,535	77,150,535	5,852,230	39,297,268	2,481,592
Total staves and heading..........	....	7,671,793	....	6,184,892	....	2,740,262
Other....................	....	3,087,005	....	3,028,642	....	1,650,760
Total lumber.......	....	80,496,899	....	72,484,756	....	....
Timber—						
Hewn..........M feet..	34,502	933,887	29,859	788,327	6,118	163,108
Sawed—						
Pitch pine......do....	447,420	9,516,618	390,149	7,821,364	159,064	2,785,379
Other..........do....	29,715	700,072	21,158	562,720	8,607	229,491
Total timber..do....	511,637	11,150,577	441,166	9,172,411	173,789	3,177,976
All other, including firewood..................	....	228,244	....	201,089	....	156,234
Total wood........	....	96,099,128	....	85,114,279	....	....

TABLE 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915*—Continued.

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Forest products—Continued.						
Wood alcohol....gallons....	1,837,173	$788,143	1,598,776	$652,486	944,374	$438,846
Wood pulp......pounds....	41,475,557	764,020	26,961,254	529,741	8,410	369,969
Total forest products....	....	124,835,784	....	106,978,554	....	....
Fruits:						
Fresh or dried—						
Apples, dried....pounds..	41,574,562	2,898,211	33,566,160	2,628,445	42,589,169	3,270,658
Apples, fresh.....barrels..	2,150,132	7,898,634	1,506,569	6,089,701	2,351,501	8,087,466
Apricots, dried...pounds..	35,016,730	3,513,473	17,401,692	1,937,771	23,764,342	2,241,061
Berries..................	....	574,449	....	717,079	....	535,479
Lemons...........boxes..	81,949	399,409	70,075	308,707	122,914	372,781
Oranges............do....	1,063,233	2,976,520	1,558,921	3,824,889	1,759,405	3,851,013
Peaches, dried...pounds..	6,529,633	444,879	6,712,296	449,549	14,452,055	834,813
Pears, fresh..............	....	796,913	....	1,402,924	....	992,497
Prunes..........pounds..	117,950,875	6,655,870	69,813,711	4,662,546	43,478,892	3,274,197
Raisins.............do....	28,120,507	1,512,642	14,766,416	997,575	24,845,414	1,718,547
Other....................	....	2,893,395	....	2,922,740	....	2,717,449
Total fresh or dried.....	....	30,564,395	....	25,941,926	....	27,895,961
Preserved—						
Canned..................	....	5,599,373	....	4,863,946	....	6,064,765
Other....................	....	181,749	....	224,841	....	269,180
Total preserved.........	....	5,781,122	....	5,088,787	....	6,333,945
Total fruits.............	....	36,345,517	....	31,030,713	....	34,229,906
Ginseng.............pounds..	221,901	1,665,731	224,605	1,832,686	103,184	919,931
Glucose and grape sugar:						
Glucose............pounds..	158,365,604	3,682,371	162,680,378	3,766,284	125,434,878	3,103,561
Grape sugar..........do....	41,783,642	970,025	36,850,496	799,635	33,027,630	781,672
Grain and grain products:						
Grain—						
Barley...........bushels..	17,536,703	11,411,819	6,644,747	4,253,129	26,754,522	18,184,079
Buckwheat.........do....	1,347	1,503	580	695	389,643	396,987
Corn................do....	49,064,967	28,800,544	9,380,855	7,008,028	48,786,291	39,339,064
Oats................do....	33,759,177	13,206,247	1,859,949	757,527	97,169,551	57,479,964
Rye.................do....	1,822,962	1,260,384	2,222,934	1,555,012	12,544,888	14,733,409
Wheat..............do....	91,602,974	89,036,428	92,393,775	87,953,456	259,642,533	333,552,226
Total grain.......do....	193,788,130	143,716,925	112,502,840	101,527,847	445,287,428	463,685,729
Grain products—						
Bran and middlings, long tons................	6,179	170,733	2,570	71,043	11,426	329,425
Breadstuff preparations—						
Bread and biscuit, pounds................	12,532,480	720,067	12,645,551	728,447	11,687,452	702,509
Other....................	....	2,358,864	....	2,323,412	....	4,306,899
Total breadstuff preparations..............	....	3,078,931	....	3,051,859	....	5,009,408
Distillers' and brewers' grains and malt sprouts, long tons................	79,160	2,061,540	59,788	1,467,028	7,590	177,987
Malt.............bushels..	370,957	300,489	330,608	270,059	....	....
Meal and flour—						
Corn meal......barrels..	428,794	1,444,539	336,241	1,185,891	470,503	1,923,214
Oatmeal.......pounds..	48,533,350	1,514,848	15,998,286	569,204	68,034,978	2,406,068
Rye flour.......barrels..	5,296	21,311	8,293	31,119	80,315	416,182
Wheat flour......do....	11,394,805	53,171,537	11,821,461	54,454,175	16,182,765	94,869,343
Total meal and flour...	....	56,152,235	....	56,240,389	....	99,614,807

TABLE 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915*—Continued.

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Grain and grain products—Continued.						
Grain products—Continued.						
Mill feed.......long tons..	156,142	$4,180,133	67,690	$1,840,011	25,459	$787,048
All other................	....	862,735	....	346,888	....	1,045,396
Total grain products....	....	66,806,796	....	63,287,277	....	....
Total grain and grain products............	....	210,523,721	....	164,815,124	....	....
Hay..............long tons..	60,720	964,429	50,151	827,205	105,508	1,980,297
Hops...............pounds..	17,591,195	4,764,713	24,262,896	6,953,529	16,210,443	3,848,020
Lard compounds. (*See* Meat and meat products.)						
Liquors, alcoholic:						
Distilled spirits—						
Alcohol, including cologne spirits....proof gallons..	151,232	58,346	187,845	67,728	200,455	108,985
Rum..............do....	1,268,054	1,667,567	1,388,738	1,815,121	1,240,804	1,588,552
Whisky—						
Bourbon..........do....	60,252	119,429	47,775	92,331	34,823	69,497
Rye..............do....	177,341	327,950	134,152	259,523	86,564	168,386
Total whisky...do....	237,593	447,379	181,927	351,854	121,387	237,883
Other..............do....	29,271	44,867	25,408	41,129	30,152	46,599
Total distilled spirits, proof gallons..........	1,686,150	2,218,159	1,783,918	2,275,832	....	....
Malt liquors—						
Bottled.....dozen quarts..	866,684	1,301,244	962,627	1,405,581	696,690	1,010,222
Unbottled........gallons..	312,965	70,219	326,946	79,595	245,494	71,890
Total malt liquors......	....	1,371,463	....	1,485,176	....	1,082,112
Wines.............gallons..	1,075,151	418,668	941,357	373,412	819,310	332,369
Total alcoholic liquors...	....	4,008,290	....	4,134,420	....	....
Malt. (*See* Grain and grain products.)						
Malt liquors. (*See* Liquors, alcoholic.)						
Malt sprouts. (*See* Grain and grain products.)						
Nursery stock................	....	459,769	....	315,065	....	170,218
Nuts:						
Peanuts...........pounds..	7,301,381	366,016	8,054,817	421,367	5,875,076	325,725
Other.....................	....	367,569	....	398,312	....	377,486
Total nuts...............	....	733,585	....	819,679	....	703,211
Oil cake and oil-cake meal:						
Corn..............pounds..	76,262,845	1,131,330	59,030,623	909,407	44,026,125	798,206
Cottonseed..........do....	1,128,092,367	15,225,798	799,974,252	11,007,441	1,479,065,015	18,906,370
Flaxseed or linseed...do....	838,119,654	12,982,423	662,868,639	9,650,379	524,794,434	9,048,061
Other...............do....	6,886,270	104,701	8,484,936	100,445	9,900,878	126,414
Total............do....	2,049,361,136	29,444,252	1,530,358,450	21,667,672	....	....
Oils, vegetable:						
Fixed or expressed—						
Corn.............pounds..	19,839,222	1,292,009	18,281,576	1,307,204	17,689,635	1,302,159
Cottonseed.........do....	315,232,892	20,736,972	192,963,079	13,843,179	318,366,525	21,872,948
Linseed..........gallons..	1,733,925	874,461	239,188	134,540	1,212,133	660,089
Other.....................	....	420,368	....	338,956	....	1,198,852
Total fixed or expressed.	....	23,323,810	....	15,623,879	....	....

Table 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915*—Continued.

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER—contd.						
Oils, vegetable—Continued.						
Volatile, or essential—						
Peppermint.....pounds..	134,663	$395,551	117,809	$397,050	184,981	$384,593
Other		325,040		230,557		413,104
Total volatile, or essential		720,591		627,607		797,697
Total vegetable oils		24,044,401		16,251,486		
Rice, rice meal, etc.:						
Rice.....pounds..	24,801,280	765,447	18,223,264	721,046	75,448,635	3,158,335
Rice bran, meal, and polish, pounds	14,106,777	109,660	4,191,062	36,274	2,031,430	15,541
Rice hulls		194,757		126,888		
Total		1,069,864		884,208		
Roots, herbs, and barks, n. e. s.		424,312		513,071		470,090
Seeds:						
Cotton seed.....pounds..	24,048,647	328,988	16,342,384	215,115	6,314,439	94,237
Flaxseed, or linseed, bushels	16,894	26,699	305,546	436,874	4,145	9,748
Grass and clover seed—						
Clover.....pounds..	5,407,594	941,622	4,640,852	691,437	9,750,064	1,563,304
Timothy.....do....	17,559,653	844,418	12,480,294	688,118	17,333,144	1,153,066
Other.....do....	8,226,512	895,276	5,156,801	600,368	4,342,926	451,595
Total grass and clover seed.....pounds..	31,193,759	2,681,316	22,277,947	1,979,923	31,426,134	3,167,965
All other seeds		527,834		558,833		589,114
Total seeds		3,564,837		3,190,745		
Spices		92,962		84,427		
Spirits, distilled. (*See* Liquors, alcoholic.)						
Starch.....pounds..	110,897,591	2,609,716	76,713,779	1,825,230	107,036,638	2,939,453
Straw.....long tons..	634	5,632	288	4,714		
Sugar, molasses, and sirup:						
Molasses.....gallons..	2,145,613	255,973	1,002,441	175,498	1,148,741	145,274
Sirup.....do..	14,309,029	1,937,648	11,630,528	1,491,639	11,439,133	1,653,495
Sugar—						
Refined.....pounds..	43,994,761	1,681,302	50,895,726	1,839,983	549,007,405	25,615,016
Total sugar, molasses, and sirup		3,874,923		3,507,120		27,413,785
Tobacco:						
Leaf.....pounds..	414,160,356	49,202,456	446,944,435	53,903,336	347,997,276	44,479,890
Stems and trimmings.do....	4,636,550	151,139	2,805,547	60,334	348,815	13,939
Total.....do....	418,796,906	49,353,595	449,749,982	53,963,670	348,346,091	44,493,829
Vegetables:						
Fresh or dried—						
Beans and peas..bushels..	400,868	1,080,066	314,655	875,493	1,214,281	3,638,526
Onions.....do....	571,074	397,516	386,322	435,953	727,983	602,585
Potatoes.....do....	2,028,261	1,646,176	1,794,073	1,463,514	3,135,474	2,345,731
Total fresh or dried, bushels	3,000,203	3,123,758	2,495,050	2,774,960	5,077,738	6,586,842
Prepared or preserved—						
Canned		1,819,281		1,520,879		1,898,840
Pickles and sauces		837,571		928,611		959,016
Other		1,572,927		1,711,950		1,368,453
Total prepared or preserved		4,229,779		4,161,440		4,226,309
Total vegetables		7,353,537		6,936,400		10,813,151

TABLE 183.—*Agricultural exports (domestic) of the United States during the 3 years ending June 30, 1915*—Continued.

Article exported.	Year ending June 30—					
	1913		1914		1915 (preliminary).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
VEGETABLE MATTER.						
Vinegar..............gallons..	213,786	$63,836	125,666	$25,112	....	....
Wines. (*See* Liquors, alcoholic.)						
Yeast....................	....	278,200	....	332,895	....	....
Total vegetable matter, including forest products..............	....	1,068,502,570	....	1,051,805,141	....	....
Total vegetable matter, excluding forest products..............	....	943,666,786	....	944,826,587	....	....
Total agricultural exports, including forest products............	....	1,248,487,769	....	1,220,952,189	....	....
Total agricultural exports, excluding forest products............	....	1,123,651,985	....	1,113,973,635	....	....

TABLE 184.—*Foreign trade of the United States in agricultural products, 1852–1915.*

[Compiled from reports of Foreign Commerce and Navigation of the United States. All values are gold.]

Year ending June 30—	Agricultural exports.[1]			Agricultural imports.[1]		Excess of agricultural exports (+) or of imports (−).
	Domestic.		Foreign.	Total.	Percentage of all imports.	
	Total.	Percentage of all domestic exports.				
Average:						
1852–1856...............	$164,895,146	80.9	$8,059,875	$77,847,158	29.1	+$95,107,863
1857–1861...............	215,708,845	81.1	10,173,833	121,018,143	38.2	+104,864,535
1862–1866...............	148,865,540	75.7	9,287,669	122.221,547	43.0	+ 35,931.662
1867–1871...............	250,713,058	76.9	8,538,101	179,774,000	42.3	+ 79,477,159
1872–1876...............	396,666,397	78.5	8,853,247	263,155,573	46.5	+142,364,071
1877–1881...............	591,350,518	80.4	8,631,780	266,383,702	50.4	+333,598,596
1882–1886...............	557,472,922	76.3	9,340,463	311,707,564	46,8	+255,105,821
1887–1891...............	573,286,616	74.7	6,982,328	366,950,109	43.3	+213,318,835
1892–1896...............	638,748,318	73.0	8,446,491	398,332,043	51.6	+248,862,766
1897–1901...............	827,566,147	65.9	10,961,539	376,549,697	50.2	+461,977,989
1902–1906...............	879,541,247	59.5	11,922,292	487,881,038	46.3	+403,582,501
1907–1011...............	975,398,554	53.9	12,126,228	634,570,734	45.2	+352,954,048
1901.....................	951,628,331	65.2	11,293,045	391.931,051	47.6	+570,990,325
1902.....................	857,113,533	63.2	10,308,306	413,744,557	45.8	+453,677,282
1903.....................	878,480,557	63.1	13,505,343	456,199,325	44.5	+435,786,575
1904.....................	859,160.264	59.9	12,625,026	461,434,851	46.6	+410.350,439
1905.....................	826,904,777	55.4	12,316,525	553,851,214	49.6	+285,370,088
1906.....................	976,047,104	56.8	10,856,259	554,175,242	45.2	+432,728,121
1907.....................	1,054,405,416	56.9	11,613,519	626,836,808	43.7	+439,182,127
1908.....................	1,017,396,404	55.5	10,298,514	539,690,121	45.2	+488,004,797
1909.....................	903,238,122	55.1	9,584,934	638,612,692	48.7	+274,210,364
1910.....................	871,158,425	50.9	14,469,627	687,509,115	44.2	+198,118,937
1911.....................	1,030,794,402	51.2	14,664,548	680,204,932	44.5	+365,254,018
1912.....................	1,050,627,131	48.4	12,107,656	783,457,471	47.4	+279,277,316
1913.....................	1,123,651,985	46.3	15,029,444	815,300,510	45.0	+323,380,919
1914.....................	1,113,973,635	47.8	17,729,462	924,246,616	48.8	+207,456,481
1915.....................	....	....	....	....	....	....

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[1] Not including forest products.

TABLE 185.—*Value of principal groups of farm and forest products exported from and imported into the United States, 1913 to 1915.*

[Compiled from reports on the Foreign Commerce of the United States.]

Article.	Exports (domestic merchandise).			Imports.		
	Year ending June 30—					
	1913	1914	1915 (preliminary).	1913	1914	1915 (preliminary).
FARM PRODUCTS.						
ANIMAL MATTER.						
Animals, live	$7,080,122	$5,803,659	$77,953,686	$9,585,791	$24,712,111	$22,279,081
Dairy products	3,220,893	2,965,934	14,049,879	10,693,107	15,403,143	14,704,277
Eggs	4,391,653	3,734,087	5,003,764	205,832	1,089,164	438,760
Feathers and downs, crude	690,612	640,020	281,806	8,237,382	4,871,663	2,502,623
Fibers, animal:						
Silk	9,704	8,178	....	84,914,717	100,930,025	83,130,557
Wool	22,625	124,127	....	35,579,823	53,190,267	68,242,568
Packing-house products	162,706,355	154,487,871	....	133,088,110	154,969,389	....
Other animal matter	1,863,235	1,383,172	....	1,401,927	3,563,922	....
Total animal matter	179,985,199	169,147,048	....	283,706,689	358,729,684	....
VEGETABLE MATTER.						
Argols or wine lees	....	....	....	2,621,632	3,228,674	3,094,380
Cocoa and chocolate	376,336	336,940	1,934,166	18,176,720	21,503,983	23,477,156
Coffee	9,010,792	8,977,651	7,302,605	118,963,209	110,725,392	106,765,644
Cotton	547,357,195	610,475,301	376,217,972	22,987,318	19,456,588	23,208,960
Fibers, vegetable, other	....	....	....	49,078,659	54,349,995	40,420,017
Fruits	36,345,517	31,030,713	34,229,906	28,657,084	33,638,334	27,081,396
Ginseng	1,665,731	1,832,686	919,931	....	....	....
Glucose and grape sugar	4,652,396	4,565,919	3,885,233	....	....	....
Grain and grain products	210,523,721	164,815,124	570,649,800	8 732,686	27,442,277	12,518,356
Hay	964,429	827,205	1,980,297	1,514,311	1,634,390	228,906
Hops	4,764,713	6,953,529	3,848,020	2,852,865	2,790,516	2,778,735
Indigo	....	....	....	1,102,897	1,093,226	1,596,978
Licorice root	....	....	....	1,806,066	2,047,192	1,252,989
Liquors, alcoholic	4,008,290	4,134,420	3,396,500	20,743,129	20,347,546	13,404,903
Nursery stock (plants, trees, etc.)	459,769	315,065	170,218	3,209,067	3,606,808	3,748,666
Nuts	733,585	819,679	703,211	13,979,905	19,888,601	16,819,799
Oil cake and oil cake meal	29,444,252	21,667,672	28,879,051	141,137	120,078	....
Oil, vegetable	24,044,401	16,251,486	25,831,745	28,129,998	32,320,782	24,772,113
Opium, crude	....	....	....	2,565,965	1,810,429	2,445,005
Rice, rice flour, meal, and broken rice	875,107	884,208	3,173,876	5,916,864	7,473,707	6,304,216
Sago, tapioca, etc	....	....	....	2,187,217	1,641,540	1,434,219
Seeds	3,564,837	3,190,745	3,861,064	17,425,533	20,084,184	23,054,820
Spices	92,962	84,427	....	6,187,136	5,595,509	5,926,972
Starch	2,609,716	1,825,230	2,939,453	457,784	408,922	343,800
Sugar, molasses, and sirup	3,874,923	3,507,120	27,413,785	105,096,173	103,394,094	175,956,108
Tea	....	....	....	17,433,688	16,735,302	17,512,619
Tobacco	49,353,595	53,963,670	44,493,829	35,938,511	35,038,520	27,156,665
Vanilla beans	....	....	....	2,641,573	2,277,675	1,863,515
Vegetables	7,353,537	6,936,400	10,813,151	11,358,761	15,133,535	9,329,732
Wax vegetable	....	....	....	1,146,077	1,049,126	1,012,402
Other vegetable matter	1,590,982	1,431,397	....	541,856	680,007	....
Total vegetable matter	943,666,786	944,826,587	....	531,593,821	565,516,932	....
Total farm products	1,123,651,985	1,113,973,635	....	815,300,510	924,246,616	....
FOREST PRODUCTS.						
Cork wood or cork bark	....	....	....	3,152,070	3,851,794	2,762,895
Dye woods, and extracts of	....	....	....	897,908	793,926	1,142,031
India rubber	....	....	....	90,170,316	71,219,851	83,030,269
Gums, other than india rubber	....	....	....	22,622,509	15,620,780	....
Naval stores	26,471,292	19,882,165	11,127,239	25,278	36,764	....
Tanning materials, n. e. s.	570,562	666,880	2,226,457	4,329,594	4,368,041	5,343,263
Wood:						
Cabinet, unsawed	....	....	....	7,375,214	7,124,688	4,271,775
Lumber	80,496,899	72,484,756	34,010,121	23,160,669	22,436,585	23,452,870
Pulp wood	....	....	....	6,954,952	7,245,466	6,572,839
Timber and logs	15,373,985	12,428,434	3,177,976	1,506,235	1,657,605	1,263,641
Rattan and reeds	....	....	....	1,040,121	1,210,390	771,628
Wood pulp	764,020	529,741	369,969	16,165,316	17,023,338	19,881,111
Other forest products	1,159,026	986,578	....	3,102,262	2,672,072	....
Total forest products	124,835,784	106,978,554	....	180,502,444	155,261,300	....
Total farm and forest products	1,248,487,769	1,220,952,189	....	995,802,954	1,079,507,916	....

TABLE 186.—*Exports of selected domestic agricultural products, 1852–1915.*

[Compiled from reports of Foreign Commerce and Navigation of the United States. Where figures are lacking, either there were no exports or they were not separately classified for publication. "Beef salted or pickled," and "Pork, salted or pickled," barrels, 1851-1865, were reduced to pounds at the rate of 200 pounds per barrel, and tierces, 1855-1865, at the rate of 300 pounds per tierce: cottonseed oil, 1910, pounds reduced to gallons at the rate of 7.5 pounds per gallon. It is assumed that 1 barrel of corn meal is the product of 4 bushels of corn, and 1 barrel of wheat flour the product of 5 bushels of wheat prior to 1880 and of 4½ bushels of wheat in 1880 and subsequently.]

Year ending June 30—	Cattle.	Cheese.	Packing-house products.				
			Beef, cured—salted or pickled.	Beef, fresh.	Beef oils—oleo oil.	Beef tallow.	Beef and its products—total, as far as ascertainable.[1]
Average:	*Number.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1852–1856..	1,431	6,200,385	25,980,520	....	....	7,468,910	33,449,430
1857–1861..	20,294	13,906,430	26,985,880	....	....	13,214,614	40,200,494
1862–1866..	6,531	42,683,073	27,662,720	....	....	43,202,724	70,865,444
1867–1871..	....	52,880,978	26,954,656	....	....	27,577,269	54,531,925
1872–1876..	45,672	87,173.752	35,826,646	....	....	78,994,360	114,821,006
1877–1881..	127,045	129,670,479	40,174,643	69,601,120	....	96,822,695	218,709,987
1882–1886..	131,605	108,790,010	47,401,470	97,327,819	30,276,133	48,745,416	225.625,631
1887–1891..	244,394	86,354,842	65,613,851	136,447,554	50,482,249	91,608,126	411,797,859
1892–1896..	349,032	66,905,798	64,898,780	207,372,575	102,038,519	56,976,840	507,177,430
1897–1901..	415,488	46,108,704	52,242,288	305,626,184	139,373,402	86,082,497	637.268,235
1902–1906..	508,103	19,244,482	59,208,292	272,148,180	156,925,317	59,892,601	622.843.230
1907–1911..	253,867	9,152.083	46,187,175	144,799,735	170,530.432	66.356.232	448,024.017
1901........	459,218	39,813,517	55,312,632	351,748,333	161,651,413	77,166,889	705,104,772
1902........	392,884	27,203,184	48,632.727	301,824,473	138,546,088	34.065,758	596,254,520
1903........	402,178	18,987,178	52,801,220	254,795,963	126,010,339	27,368,924	546.055.244
1904........	593,409	23,335,172	57,584,710	299,579,671	165,183.839	76,924,174	663.147,095
1905........	567,806	10,134,424	55,934,705	236,486,568	145,228,245	63,536,992	575,874,718
1906........	584,239	16,562,451	81,088,098	268,054,227	209,658,075	97,567,156	732.884,572
1907........	423,051	17,285,230	62,645,281	281,651,502	195,337,176	127,857,739	689.752,420
1908........	349,210	8,439,031	46,958,367	201,154,105	212,541.157	91,397.507	579.303,478
1909........	207,542	6,822,842	44,494,210	122,952,671	179,985,246	53,332,767	418.844.332
1910........	139,430	2,846,709	36,554,266	75,729,666	126,091,675	29,379,992	286.295,874
1911........	150,100	10,366,605	40,283,749	42,510,731	138,696,906	29,813,154	265,923.983
1912........	105,506	6,337,559	38,087,907	15,264,320	126,467,124	39,451,419	233,924.626
1913........	24,714	2,599,058	25,856,919	7,362,388	92,849,757	30.586,350	166,463.344
1914........	18,376	2,427,577	23,265,974	6,394,404	97,017,065	15,812,831	148,487,828
1915........	5,484	54,069,917	31,874,743	170.440,934	80,481,946	20,239,988	383,564,402

Year ending June 30—	Packing-house products.					Apples, fresh.	Corn and corn meal (in terms of grain.)
	Pork, cured—bacon.	Pork, cured—hams and shoulders.	Pork, cured—salted or pickled.	Pork—lard.	Pork and its products—total, as far as ascertainable.[2]		
Average:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Barrels.*	*Bushels.*
1852–1856..	30,005,479	....	40,542,600	33,354,976	103,903,056	37,412	7,123,286
1857–1861..	30,583,297	....	34,854,400	37,965,993	103,403,690	57,045	6,557,610
1862–1866..	10,796,961	....	52,550,758	89,138,251	252,485,970	119,433	12,059,794
1867–1871..	45,790,113	....	28,879,085	53,579,373	128,248,571	....	9,924,235
1872–1876..	313,402,401	....	60,429,361	194,197,714	568,029,477	132,756	38.560.557
1877–1881..	643,633,709	....	85,968,138	331,457,591	1,075,793,475	509,735	88,190,030
1882–1886..	355,905,444	47,634,675	72,354,682	263,425,058	739,455,913	401,886	49,992,203
1887–1891..	419,935,416	60,697,365	73,984,682	381,388,854	936,247,966	522,511	54,606,273
1892–1896..	438,847,549	96,107,152	64,827,470	451,547,135	1,052,133,760	520,810	63,979,898
1897–1901..	536,287,266	200,853,226	112,788,498	652,418,143	1,528.138,779	779,980	192,531,378
1902–1906..	292,721,953	206,902,427	116,823,284	592,130,894	1,242,136,649	1,368,608	74,615.465
1907–1911..	209,005,144	189,603,211	90.809,879	519.746.378	1,028.996.659	1,225.655	56,568.030
1901........	456,122,741	216,571,803	138,643,611	611,357,514	1,462,369,849	883,673	181,405,473
1902........	383,150.624	227,653,232	115,896,275	556,840,222	1,337,315,909	459,719	28,028,688
1903........	207,336.000	214,183,365	95,287,374	490,755,821	1,042,119,570	1,656,129	76,639,261
1904........	249,665,941	194,948,864	112,224,861	561,302,643	1,146,255,441	2,018,262	58,222,061
1905........	262,246,635	203,458,724	118,887,189	610,238,899	1,220,031,970	1,499,942	90,293,483
1906........	361,210,563	194,267,949	141,820,720	741,516,886	1,464,960,356	1,208,989	119,893,833
1907........	250,418,699	209,481,496	166,427,409	627,559,660	1,268,065,412	1,539,267	86,368,228
1908........	241,189,929	221,769,634	149,505,937	603,413,770	1,237,210,760	1,049,545	55,063,860
1909........	244,578,674	212,170,224	52,354,980	528,722,933	1,053,142,056	896,279	37.665.040
1910........	152,163,107	146,885,385	40,031,599	362,927,671	707,110,062	922,078	38,128,498
1911........	156,675,310	157,709,316	45,729,471	476,107,857	879,455,006	1,721,106	65,614,522
1912........	208,574,208	204,044,491	56,321,469	532,255,865	1,071,951,724	1,456,381	41,797,291
1913........	200,993,584	159,544,687	53,749,023	519,025,384	984,696,710	2,150,132	50,780,143
1914........	193,964,252	165,881,791	45,543,085	481,457,792	921,913,029	1,506,569	10,725,819
1915........	346,718,227	203,701,114	45,655,574	475,531,908	1,106,180,488	2,351,501	50,668.303

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[1] Includes canned, cured, and fresh beef, oleo oil, oleomargarine, and tallow.
[2] Includes canned, fresh, salted or pickled pork, lard, neutral lard, bacon, and hams.

TABLE 186.—*Exports of selected domestic agricultural products, 1852-1915*—Continued.

Year ending June 30—	Lard compounds.	Cotton.	Glucose and grape sugar.	Corn-oil cake and oil-cake meal.	Cottonseed-oil cake and oil-cake meal.	Prunes.	Tobacco.
Average:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1852-1856	....	1,110,498,083	....	....	....	....	140,183,800
1857-1861	....	1,125,715,497	....	....	....	....	167,710,800
1862-1866	....	137,582,133	....	....	....	....	140,207,850
1867-1871	....	902,410,338	....	....	....	....	194,753,537
1872-1876	....	1,248,805,497	....	....	....	....	241,848,410
1877-1881	....	1,738,892,268	....	....	....	....	266,315,190
1882-1886	....	1,968,178,266	4,473,550	....	....	....	237,941,913
1887-1891	....	2,439,650,456	27,686,298	....	....	....	259,248,361
1892-1896	....	2,736,655,351	125,574,007	....	....	....	281,746,279
1897-1901	21,792,477	3,447,909,578	209,279,772	....	1,005,099,895	....	304,401,701
1902-1906	52,954,358	3,632,267,952	154,866,980	21,888,135	1,066,790,196	48,550,774	325,538,515
1907-1911	75,765,254	4,004,770,051	145,064,783	61,732,807	989,738,130	47,039,287	334,395,923
1901	23,359,966	3,359,062,360	204,209,974	12,703,209	1,258,687,317	10,021,564	315,787,782
1902	36,201,744	3,528,974,636	130,419,611	14,740,498	1,050,466,246	23,358,849	301,007,365
1903	46,130,004	3,569,141,969	126,239,981	8,093,222	1,100,392,988	66,385,215	368,184,084
1904	53,603,545	3,089,855,906	152,768,716	14,014,885	820,349,073	73,146,214	311,971,831
1905	61,215,187	4,339,322,077	175,250,580	24,171,127	1,251,907,996	54,993,849	334,302,091
1906	67,621,310	3,634,045,170	189,656,011	48,420,942	1,110,834,678	24,869,744	312,227,202
1907	80,148,861	4,518,217,220	151,629,441	56,808,972	1,340,967,136	44,400,104	340,742,864
1908	75,183,210	3,816,998,693	129,686,834	66,127,704	929,287,467	28,148,450	330,812,658
1909	75,183,196	4,447,985,202	112,224,504	53,233,890	1,233,750,327	22,602,288	287,900,946
1910	74,556,603	3,206,708,226	149,820,088	49,108,598	640,088,766	89,014,880	357,196,074
1911	73,754,400	4,033,940,915	181,963,046	83,384,870	804,596,955	51,030,711	355,327,072
1912	62,522,888	5,535,125,429	171,156,259	72,490,021	1,293,690,138	74,328,074	379,845,320
1913	67,456,832	4,562,295,675	200,149,246	76,262,845	1,128,092,367	117,950,875	418,796,906
1914	58,303,564	4,760,940,538	199,530,874	59,030,623	799,974,252	69,813,711	449,749,982
1915	69,980,614	4,403,578,499	158,462,508	44,026,125	1,479,065,015	43,478,892	348,346,091

Year ending June 30—	Hops.	Oils, vegetable—cottonseed oil.	Rice and rice bran, meal, and polish.	Sugar, raw and refined.	Wheat.	Wheat flour.	Wheat and wheat flour (in terms of grain).
Average:	*Pounds.*	*Gallons.*	*Pounds.*	*Pounds.*	*Bushels.*	*Barrels.*	*Bushels.*
1852-1856	1,162,802	....	56,514,840	7,730,322	4,715,021	2,891,562	19,172,830
1857-1861	2,216,095	....	65,732,080	6,015,058	12,378,351	3,318,280	28,969,749
1862-1866	4,719,330	....	2,257,860	3,007,777	22,529,735	3,530,757	40,183,518
1867-1871	6,486,616	....	1,856,948	4,356,900	22,106,833	2,585,115	35,032,409
1872-1876	3,446,466	547,450	391,344	20,142,169	48,957,518	3,415,871	66,036,873
1877-1881	10,445,654	4,498,436	602,442	41,718,443	107,780,556	5,375,583	133,262,753
1882-1886	9,584,437	3,467,905	561,406	107,129,770	82,883,913	8,620,199	121,674,809
1887-1891	7,184,147	7,120,796	3,209,653	75,073,838	64,739,011	11,286,568	115,528,568
1892-1896	15,146,667	15,782,647	10,277,947	13,999,349	99,913,895	15,713,279	170,623,652
1897-1901	15,467,314	42,863,203	18,407,139	11,213,664	120,247,430	17,151,070	197,427,246
1902-1906	11,476,272	38,605,737	45,977,670	14,807,014	70,527,077	15,444,100	140,025,529
1907-1911	14,774,185	38,783,550	27,194,549	61,429,802	62,854,580	11,840,699	116,137,728
1901	14,963,676	49,356,741	25,527,846	8,874,860	132,060,667	18,650,979	215,990,073
1902	10,715,151	33,042,848	29,591,274	7,572,452	154,856,102	17,759,203	234,772,516
1903	7,794,705	35,642,994	19,750,448	10,520,156	114,181,420	19,716,484	202,905,598
1904	10,985,988	29,013,743	29,121,763	15,418,537	44,230,169	16,999,432	120,727,613
1905	14,858,612	51,535,580	113,282,760	18,348,077	4,394,402	8,826,335	44,112,910
1906	13,026,904	43,793,519	38,142,103	22,175,846	34,973,291	13,919,048	97,609,007
1907	16,809,534	41,880,304	30,174,371	21,237,603	76,569,423	15,584,667	146,700,425
1908	22,920,480	41,019,991	28,444,415	25,510,643	100,371,057	13,927,247	163,043,669
1909	10,446,884	51,087,329	20,511,429	79,946,297	66,923,244	10,521,161	114,268,468
1910	10,589,254	29,860,667	26,779,188	125,507,022	46,679,876	9,040,987	87,364,318
1911	13,104,774	30,069,459	30,063,341	54,947,444	23,729,302	10,129,435	69,311,760
1912	12,190,663	53,262,796	39,446,571	79,594,034	30,160,212	11,006,487	79,689,404
1913	17,591,195	42,031,052	38,908,057	43,994,761	91,602,974	11,394,805	141,132,166
1914	24,262,896	25,728,411	22,414,326	50,895,726	92,393,775	11,821,461	145,590,349
1915	16,210,443	42,448,870	77,480,065	549,007,405	259,642,533	16,182,765	332,464,976

TABLE 187.—*Imports of selected agricultural products, 1852–1915.*

[Compiled from reports of Foreign Commerce and Navigation of the United States. Where figures are lacking, either there were no imports or they were not separately classified for publication. "Silk" includes, prior to 1881, only "Silk, raw or as reeled from the cocoon;" in 1881 and 1882 are included this item and "Silk waste;" after 1882, both these items and "Silk cocoons." From "Cocoa and chocolate" are omitted in 1860, 1861, and in 1872 to 1881, small quantities of chocolate, the official returns for which were given only in value. "Jute and jute butts" includes in 1858 and 1859 an unknown quantity of "Sisal grass, coir, etc.," and in 1865-1868 an unknown quantity of "Hemp." Cattle hides are included in "Hides and skins other than cattle and goat" in 1895-1897. Olive oil for table use includes in 1862-1864 and 1885-1905 all olive oil. Sisal grass includes in 1884-1890 "Other vegetable substances." Hemp includes in 1885-1888 all substitutes for hemp.]

Year ending June 30—	Cheese.	Silk.	Wool.	Almonds.	Argols or wine lees.	Cocoa and chocolate, total.	Coffee.
Average:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1852–1856	1,053,983	....	19,067,447	3,460,807	....	2,486,572	196,582,863
1857–1861	1,378,147	....	....	3,251,091	....	3,063,893	216,235,090
1862–1866	....	....	....	2,482,063	1,354,947	2,453,141	124,551,992
1867–1871	....	681,669	....	....	2,360,529	3,502,614	248,726,019
1872–1876	....	1,094,948	....	....	4,951,473	4,857,364	307,006,928
1877–1881	....	1,922,269	62,744,282	....	12,403,256	6,315,488	384,282,199
1882–1886	....	4,672,846	83,293,800	....	17,551,967	11,568,173	529,578,782
1887–1891	8,335,323	6,564,121	117,763,889	5,860,728	21,433,570	18,322,049	509,367,994
1892–1896	9,649,752	8,382,892	162,640,491	7,487,676	26,469,990	25,475,234	597,484,217
1897–1901	12,588,515	10,962,210	163,979,079	7,361,198	24,379,847	38,209,423	816,570,082
1902–1906	22,165,754	17,187,544	193,656,402	10,920,881	27,647,440	70,901,254	980,119,167
1907–1911	37,662,812	22,143,461	199,562,649	15,297,414	29,350,692	113,673,368	934,533,322
1901	15,329,099	10,405,555	103,583,505	5,140,232	28,598,781	47,620,204	854,871,310
1902	17,067,714	14,234,826	166,576,966	9,868,982	29,276,148	52,878,587	1,091,004,252
1903	20,671,384	15,270,859	177,137,796	8,142,164	29,966,557	65,046,884	915,086,380
1904	22,707,103	16,722,709	173,742,834	9,838,852	24,571,730	75,070,746	995,043,284
1905	23,095,705	22,357,307	249,135,746	11,745,081	26,281,931	77,383,024	1,047,792,984
1906	27,286,866	17,352,021	201,688,668	15,009,326	28,140,835	84,127,027	851,668,933
1907	33,848,766	18,743,904	203,847,545	14,233,613	30,540,893	97,059,513	985,321,473
1908	32,530,830	16,662,132	125,980,524	17,144,968	26,738,834	86,604,684	890,640,057
1909	35,548,143	25,187,957	266,409,304	11,029,421	32,115,646	132,660,931	1,049,868,768
1910	40,817,524	23,457,223	263,928,232	18,556,356	28,182,956	111,070,834	871,469,516
1911	45,568,797	26,666,091	137,647,641	15,522,712	29,175,133	140,970,877	875,366,797
1912	46,542,007	26,584,962	193,400,713	17,231,458	23,661,078	148,785,846	885,201,247
1913	49,387,944	32,101,555	195,293,255	15,670,558	29,479,119	143,509,852	863,130,757
1914	63,784,313	34,545,829	247,648,869	19,038,405	29,793,011	179,364,091	1,001,528,317
1915	50,138,520	31,052,674	308,083,429	17,111,264	28,624,554	194,734,195	1,118,690,524

Year ending June 30—	Flax.	Hemp.	Hops.	Jute and jute butts.	Licorice root.	Manila.	Molasses.
Average:	*Long tons.*	*Long tons.*	*Pounds.*	*Long tons.*	*Pounds.*	*Long tons.*	*Gallons.*
1852–1856	1,143	1,574	....	3,244	....	12,084	28,488,888
1857–1861	....	2,652	....	17,239	1,372,573	....	30,190,875
1862–1866	....	....	....	3,213	1,887,892	15,566	34,262,933
1867–1871	....	....	....	14,909	....	....	53,322,088
1872–1876	4,170	22,711	....	49,188	....	....	44,815,321
1877–1881	4,260	22,458	....	62,496	....	....	32,638,963
1882–1886	5,678	30,557	1,618,879	91,058	....	....	35,019,689
1887–1891	7,021	36,919	7,771,672	104,887	59,275,373	....	30,543,299
1892–1896	6,785	5,409	2,386,240	84,111	86,444,974	47,354	15,474,619
1897–1901	7,008	4,107	2,381,899	93,970	87,475,620	47,217	6,321,160
1902–1906	8,574	5,230	5,205,867	101,512	99,543,395	60,813	17,191,821
1907–1911	9,721	6,368	6,769,965	100,420	96,111,469	67,289	24,147,348
1901	6,878	4,057	2,606,708	103,140	100,105,654	43,735	11,453,156
1902	7,772	6,054	2,805,293	128,963	109,077,323	56,453	14,391,215
1903	8,155	4,919	6,012,510	79,703	88,580,611	61,648	17,240,399
1904	10,123	5,871	2,758,163	96,735	89,463,182	65,666	18,828,530
1905	8,089	3,987	4,339,379	98,215	108,443,892	61,562	19,477,885
1906	8,729	5,317	10,113,989	103,945	102,151,969	58,738	16,021,076
1907	8,656	8,718	6,211,893	104,489	66,115,863	54,513	24,630,935
1908	9,528	6,213	8,493,265	107,533	109,355,720	52,467	18,882,756
1909	9,870	5,208	7,386,574	156,685	97,742,776	61,902	22,092,696
1910	12,761	6,423	3,200,560	68,155	82,207,496	93,253	31,292,165
1911	7,792	5,278	8,557,531	65,238	125,135,490	74,308	23,838,190
1912	10,900	5,007	2,991,125	101,001	74,582,225	68,536	28,828,213
1913	12,421	7,663	8,494,144	125,389	105,116,227	73,823	33,926,521
1914	9,885	8,822	5,382,025	106,033	115,636,131	49,688	51,410,271
1915	4,694	5,310	11,651,332	83,140	65,958,501	51,081	70,839,623

TABLE 187.—*Imports of selected agricultural products, 1852-1915*—Continued.

Year ending June 30—	Olive oil, for table use.	Opium, crude.	Potatoes.	Rice, and rice flour, rice meal, and broken rice.	Sisal grass.	Sugar, raw and refined.	Tea.
Average:	*Gallons.*	*Pounds.*	*Bushels.*	*Pounds.*	*Long tons.*	*Pounds.*	*Pounds.*
1852-1856	....	110,143	406,611	....	....	479,373,648	24,959,922
1857-1861	....	113,594	....	....	....	691,323,833	28,149,643
1862-1866	177,947	128,590	251,637	70,893,331	615	672,637,141	30,869,450
1867-1871	152,827	209,096	216,077	52,953,577	....	1,138,464,815	44,052,805
1872-1876	174,555	365,071	254,615	72,536,435	....	1,614,055,119	62,436,359
1877-1881	218,507	407,656	1,850,106	62,614,706	....	1,760,508,290	67,583,083
1882-1886	....	391,946	2,834,736	99,870,675	....	2,458,490,409	74,781,418
1887-1891	758,352	475,299	3,878,580	156,868,635	40,274	3,003,283,854	84,275,049
1892-1896	773,692	528,785	1,804,649	160,807,652	50,129	3,827,799,481	92,782,175
1897-1901	909,249	567,681	495,150	165,231,669	70,297	3,916,433,945	86,809,270
1902-1906	1,783,425	537,576	2,662,121	150,913,684	96,832	3,721,782,404	98,677,584
1907-1911	3,897,224	489,513	1,907,405	215,892,467	102,440	3,997,156,461	96,742,977
1901	983,059	583,208	371,911	117,199,710	70,076	3,975,005,840	89,806,453
1902	1,339,097	534,189	7,656,162	157,658,894	89,583	3,031,915,875	75,579,125
1903	1,494,132	516,570	358,505	169,656,284	87,025	4,216,108,106	108,574,905
1904	1,713,590	573,055	3,166,581	154,221,772	109,214	3,700,623,613	112,905,541
1905	1,923,174	594,680	181,199	106,483,515	100,301	3,680,932,998	102,706,599
1906	2,447,131	469,387	1,948,160	166,547,957	98,037	3,979,331,430	93,621,750
1907	3,449,517	565,252	176,917	209,603,180	99,061	4,391,839,975	86,368,490
1908	3,799,112	285,845	403,052	212,783,392	103,994	3,371,997,112	94,149,564
1909	4,129,454	517,388	8,383,966	222,900,422	91,451	4,189,421,018	114,916,520
1910	3,702,210	449,239	353,208	225,400,545	99,966	4,094,545,936	85,626,370
1911	4,405,827	629,842	218,984	208,774,795	117,727	3,937,978,265	102,563,942
1912	4,836,515	399,837	13,734,695	190,063,331	114,467	4,104,618,393	101,406,816
1913	5,221,001	508,433	327,230	222,103,547	153,869	4,740,041,488	94,812,800
1914	6,217,560	455,200	3,645,993	300,194,917	215,547	5,066,821,873	91,130,815
1915	6,710,967	484,027	270,942	277,191,472	185,764	5,420,981,867	96,987,942

Year ending June 30—	Beeswax.	Onions.	Plums and prunes.	Raisins.	Currants.	Dates.	Figs.
Average:	*Pounds.*	*Bushels.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1887-1891	128,790	....	60,237,642	38,545,635	....	....	9,783,650
1892-1896	279,839	....	12,405,549	17,745,925	34,397,754	14,914,349	10,117,049
1897-1901	265,143	628,358	560,762	7,669,593	27,520,440	15,653,642	8,919,921
1902-1906	456,727	924,418	563,900	7,344,676	35,457,213	25,649,432	14,334,760
1907-1911	845,720	1,103,034	....	5,283,145	35,258,628	26,059,353	19,848,037
1901	213,773	774,042	745,974	3,860,836	16,049,198	20,013,681	9,933,871
1902	408,706	796,316	522,478	6,683,545	36,238,976	21,681,159	11,087,131
1903	488,576	925,599	633,819	6,715,675	33,878,209	43,814,917	16,482,142
1904	425,168	1,171,242	494,105	6,867,617	38,347,649	21,058,164	13,178,061
1905	373,569	856,366	671,604	4,041,689	31,742,919	19,257,250	13,364,107
1906	587,617	872,566	497,494	12,414,855	37,078,311	22,435,672	17,562,358
1907	917,088	1,126,114	323,377	3,967,151	38,392,779	31,270,899	24,346,173
1908	671,526	1,275,333	335,089	9,132,353	38,652,656	24,958,343	18,836,574
1909	764,937	574,530	296,123	5,794,320	32,482,111	21,869,218	15,235,513
1910	972,145	1,024,226	....	5,042,683	33,326,030	22,693,713	17,362,197
1911	902,904	1,514,967	....	2,479,220	33,439,565	29,504,592	23,459,728
1912	1,076,741	1,436,037	....	3,255,861	33,151,396	25,208,248	18,765,408
1913	828,793	789,458	....	2,579,705	30,843,735	34,304,951	16,837,819
1914	1,412,200	1,114,811	....	4,554,549	32,033,177	34,073,608	19,284,868
1915	....	829,177	....	2,808,806	30,350,527	24,949,374	20,779,730

TABLE 187.—*Imports of selected agricultural products, 1852-1915*—Continued.

Year ending June 30—	Hides and skins, other than furs.			Macaroni, vermicelli, and all similar preparations.	Lemons.	Oranges.	Walnuts.
	Cattle.	Goat.	Other than cattle and goat.				
Average	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1897-1901	....	68,052,973	91,173,311	....	....	....	....
1902-1906	126,995,011	93,674,819	115,952,418	....	153,160,863	41,104,544	....
1907-1911	178,681,537	94,329,840	143,351,321	99,724,072	153,343,434	12,089,790	30,980,661
1901	129,174,624	73,745,596	77,989,617	....	148,514,614	50,332,914	....
1902	148,627,907	88,038,516	89,457,680	....	164,075,309	52,742,476	....
1903	131,644,325	85,114,070	102,340,303	28,787,821	152,004,213	56,872,070	12,362,567
1904	85,370,168	86,338,547	103,024,752	40,224,202	171,923,221	35,893,260	23,670,761
1905	113,177,357	97,803,571	126,893,934	53,441,080	139,084,321	28,880,575	21,684,104
1906	156,155,300	111,079,391	158,045,419	77,926,029	138,717,252	31,134,341	24,917,028
1907	134,671,020	101,201,596	135,111,199	87,720,730	157,859,906	21,267,346	32,597,592
1908	98,353,249	63,640,758	120,770,918	97,233,708	178,490,003	18,397,429	28,887,110
1909	192,252,083	104,048,244	148,253,998	85,114,003	135,183,550	8,435,873	26,157,703
1910	318,003,538	115,844,758	174,770,732	113,772,801	160,214,785	4,676,118	33,641,466
1911	150,127,796	86,913,842	137,849,757	114,779,116	134,968,924	7,672,186	33,619,434
1912	251,012,513	95,340,703	191,414,882	108,231,028	145,639,396	7,628,662	37,213,674
1913	268,042,390	96,250,305	207,903,995	106,500,752	151,416,412	12,252,960	26,662,441
1914	279,963,488	84,759,428	196,347,770	126,128,621	....	....	37,195,728
1915	334,341,417	66,547,163	137,429,153	56,542,480	....	....	33,445,838

TABLE 188.—*Foreign trade of the United States in forest products, 1852-1915.*

[Compiled from reports of Foreign Commerce and Navigation of the United States. All values are gold.]

Year ending June 30—	Exports.		Imports.	Excess of exports (+) or of imports (−).
	Domestic.	Foreign.		
Average:				
1852-1856	$6,819,079	$694,037	$3,256,302	+$4,256,814
1857-1861	9,994,808	962,142	6,942,211	+ 4,014,739
1862-1866	7,366,103	798,076	8,511,370	− 347,191
1867-1871	11,775,297	690,748	14,812,576	− 2,346,531
1872-1876	17,906,771	959,862	19,728,458	− 861,825
1877-1881	17,579,313	552,514	22,006,227	− 3,874,400
1882-1886	24,704,992	1,417,226	34,252,753	− 8,130,535
1887-1891	26,060,729	1,442,760	39,647,287	−12,143,798
1892-1896	29,276,428	1,707,307	45,091,081	−14,107,346
1897-1901	45,960,863	3,283,274	52,326,879	− 3,082,742
1902-1906	63,584,670	3,850,221	79,885,457	−12,450,566
1907-1911	88,764,471	6,488,455	137,051,471	−41,798,545
1901	55,369,161	3,599,192	57,143,650	+ 1,824,703
1902	48,928,764	3,609,071	59,187,049	− 6,649,214
1903	58,734,016	2,865,325	71,478,022	− 9,878,681
1904	70,085,789	4,177,352	79,619,296	− 5,356,155
1905	63,199,348	3,790,097	92,680,555	−25,691,110
1906	76,975,431	4,809,261	96,462,364	−14,677,672
1907	92,948,705	5,500,331	122,420,776	−23,971,740
1908	90,362,073	4,570,397	97,733,092	− 2,800,622
1909	72,442,454	4,982,810	123,920,126	−46,494,862
1910	85,030,230	9,801,881	178,871,797	−84,039,686
1911	103,038,892	7,586,854	162,311,565	−51,685,819
1912	108,122,254	6,413,343	172,523,465	−57,987,868
1913	124,835,784	7,431,851	180,502,444	−48,234,809
1914	106,978,554	4,517,766	155,261,300	−43,764,980
1915	....	....	....	....

TABLE 189.—*Exports of selected domestic forest products, 1852–1915.*

[Compiled from reports of Foreign Commerce and Navigation of the United States. Where figures are lacking, either there were no exports or they were not separately classified for publication.]

Year ending June 30—	Lumber.			Rosin.	Spirits of turpentine.	Timber.	
	Boards, deals, and planks.[1]	Shooks, other than box.	Staves.			Hewn.	Sawed.
	M feet.	*Number.*	*Number.*	*Barrels.*	*Gallons.*	*Cubic feet.*	*M feet.*
Average:							
1852–1856	129.499	....	....	552,210	1,369,250	....	....
1857–1861	205,476	....	....	664,206	2,735,104	....	....
1862–1866	138,020	....	....	69,314	107,162	....	....
1867–1871	138,720	....	....	491,774	2,693,412	....	....
1872–1876	221.658	....	....	845,803	....	17,459,632	....
1877–1881	303,114	....	....	....	7,138,556	18,316,876	....
1882–1886	433,963	....	....	1,289,869	9,301,894	13,701,663	....
1887–1891	531,755	593,054	....	1,533,834	10,794,025	6,401,543	218,796
1891–1896	616,090	435,581	....	2,006,427	14,258,928	6,062,418	263,641
1897–1901	957,218	668,797	....	2,477,696	18,349,386	5,146,927	428,755
1902–1906	212.476	765,215	51,234,056	2,453,280	16,927,090	3,968,469	508,212
1907–1911	1,649.203	925,828	56,181,900	2,355,560	16,658,955	3,406,245	479,776
1901	1,101,815	714,651	47,363,262	2,820,815	20,240,851	4,624,698	533,920
1902	942,814	788,241	46,998,512	2,535,962	19,177,788	5,388,439	412,750
1903	1,065,771	566,205	55,879.010	2,396,498	16,378,787	3,291,498	530,659
1904	1,426,784	533,182	47,420,095	2,585,108	17,202,808	3,788,740	558,690
1905	1,283,406	872,192	48,286,285	2,310,275	15,894,813	3,856,623	486,411
1906	1,343,607	1,066,253	57,586,378	2,438,556	15,981,253	3,517,046	552,548
1907	1,623,964	803,346	51,120,171	2,560,966	15,854,676	3,278,110	600,865
1908	1,548,130	900,812	61,696,949	2,712,732	19,532,583	4,883,506	463,440
1909	1 357,822	977,376	52,583,016	2,170,177	17,502,028	2,950,528	383,309
1910	1,684,489	928,197	49,783,771	2,144,318	15,587,737	3,245,196	451,721
1911	2,031,608	1,019,411	65,725,595	2,189,607	14,817,751	2,673,887	499,547
						M feet.	
1912	2,306,680	1,161,591	64,162,599	2,474,460	19,599,241	31,067	406,954
1913	2,550,308	1,710,095	89,005,624	2,806,046	21,039,597	34,502	477,135
1914	2,405,296	867,805	77,150,535	2,417,950	18,900,704	29,859	411,307
1915	1,129,205	620,043	39,297,268	1,372,316	9,464,120	6,118	167,671

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[1] Including "Joists and scantling" prior to 1884.

TABLE 190.—*Imports of selected forest products, 1852–1915.*

Year ending June 30—	Camphor, crude.	India rubber.	Rubber gums, total.	Lumber.		Shellac.	Wood pulp.
				Boards, deals, planks, and other sawed.	Shingles.		
	Pounds.	*Pounds.*	*Pounds.*	*M feet.*	*M.*	*Pounds.*	*Long tons.*
Average:							
1852–1856	213,720	....	....	....	....	....	....
1857–1861	360,522	....	....	....	....	....	....
1862–1866	386,731	....	....	....	....	634,276	....
1867–1871	....	....	[1] 7,389,890	....	....	....	....
1872–1876	....	....	12,631,388	564,642	88,197	....	....
1877–1881	1,515,614	....	15,610,634	417,907	55,394	....	....
1882–1886	1,958,608	....	24,480,997	577,728	87,760	....	....
1887–1891	2,273,883	....	33,226,520	646,745	184,050	5,086,421	37,251
1892–1896	1,491,902	38,359,547	39,671,553	661,495	....	5,848,339	42,771
1897–1901	1,858,018	47,469,136	52,974,744	566,394	....	8,839,232	46,827
1902–1906	2,139,183	57,903,641	75,908,633	727,205	772,340	11,613,967	130,764
1907–1911	2,939,167	80,129,567	121,504,098	899,659	866,565	19,046,030	319,007
1901	2,175,784	55,275,529	64,927,176	490,820	555,853	9,608,745	46,757
1902	1,831,058	50,413,481	67,790,069	665,603	707,614	9,064,789	67,416
1903	2,472,440	55,010,571	69,311,678	720,937	724,131	11,590,725	116,881
1904	2,819,673	59,015,551	74,327,584	589,232	770,373	10,933,413	144,796
1905	1,904,002	67,234,256	87,004,384	710,538	758,725	10,700,817	167,504

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[1] Includes "Gutta-percha" only, for 1867.

TABLE 190.—*Imports of selected forest products, 1852–1915*—Continued.

Year ending June 30—	Camphor, crude.	India rubber.	Rubber gums, total.	Lumber.		Shellac.	Wood pulp.
				Boards, deals, planks, and other sawed.	Shingles.		
	Pounds.	*Pounds.*	*Pounds.*	*M feet.*	*M.*	*Pounds.*	*Long tons.*
1906	1,668,744	[1]57,844,345	81,109,451	949,717	900,856	15,780,090	157,224
1907	3,138,070	[1]76,963,838	106,747,589	934,195	881,003	17,785,960	213,110
1908	2,814,299	[1]62,233,160	85,809,625	791,288	988,081	13,361,932	237,514
1909	1,990,499	[1]88,359,895	114,598,768	846,024	1,058,363	19,185,137	274,217
1910	3,026,648	[1]101,044,681	154,620,629	1,054,416	762,798	29,402,182	378,322
1911	3,726,319	72,046,260	145,743,880	872,374	642,582	15,494,940	491,873
1912	2,154,646	110,210,173	175,965,538	905,275	514,657	18,745,771	477,508
1913	3,709,264	113,384,359	170,747,339	1,090,628	560,297	21,912,015	502,913
1914	3,476,908	131,995,742	161,777,250	928,873	895,038	16,719,756	508,360
1915	3,729,207	172,068,428	196,121,979	939,322	1,487,116	24,153,363	587,922

[1] Includes "Guayule gum," crude.

TABLE 191.—*Principal farm products imported from specified countries into the United States, 1913–1915.*

Country from which consigned, and article.	Year ending June 30—					
	1913		1914		1915	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Brazil:						
Cocoa (crude)...pounds..	14,354,460	$1,642,714	25,870,186	$2,764,766	19,708,616	$2,017,224
Coffee..............do....	639,262,011	87,867,451	743,113,500	76,016,463	773,400,315	65,492,280
British West Indies:						
Bananas.......bunches..	11,164,894	3,488,964	15,677,191	4,849,037	11,957,935	3,483,373
Cocoa...........pounds..	29,588,055	4,040,691	44,062,426	5,372,327	40,728,851	5,407,262
Canada: Tea.........do....	3,024,508	874,544	3,112,383	864,814	3,446,615	981,933
China: Tea..........do....	23,728,418	3,247,761	20,139,342	2,755,512	23,100,548	3,149,308
Colombia: Coffee....do....	89,684,514	11,728,459	91,830,513	11,556,038	111,077,449	13,710,164
Cuba:						
Bananas.......bunches..	2,213,733	834,206	2,354,395	853,536	2,708,624	929,761
Sugar (raw).....pounds..	4,311,744,043	93,703,674	4,926,606,243	98,394,782	4,784,888,157	156,181,349
Dominican Republic:						
Cocoa, pounds	27,241,763	3,068,655	26,782,966	3,187,006	46,620,464	5,499,510
Ecuador: Cocoa......do....	15,229,159	1,606,253	26,319,735	2,693,674	33,418,752	3,351,797
France:						
Cheese..............do....	3,982,513	785,965	5,418,904	1,032,817	3,554,297	737,212
Olive oil (salad) .gallons..	932,536	1,465,635	949,858	1,512,324	802,092	1,215,594
Italy:						
Cheese...........pounds..	21,326,445	4,217,674	26,453,626	5,024,270	25,662,434	5,108,890
Macaroni...........do....	102,050,089	4,692,468	121,924,372	5,481,187	54,591,991	2,944,398
Olive oil(salad)..gallons..	3,581,945	4,619,156	4,319,567	5,552,098	4,864,388	6,089,646
Japan: Tea.......pounds..	44,381,278	7,793,197	41,913,273	7,171,202	43,869,012	7,683,356
Mexico: Coffee.......do....	26,121,439	4,090,909	49,385,504	8,028,186	52,706,120	6,898,161
Netherlands:						
Cheese...............do....	3,420,790	439,079	3,656,763	455,159	2,210,861	287,620
Coffee...............do....	1,956,676	350,093	5,905,654	936,763	1,583,672	253,731
Philippine Islands: Sugar, pounds..................	203,160,972	4,593,199	116,749,211	2,553,601	326,842,296	7,511,126
Portugal: Cocoa...pounds..	23,040,617	2,962,644	17,738,638	2,292,959	3,516,655	512,270
Switzerland: Cheese, pounds..................	17,371,616	3,183,350	22,489,706	3,617,651	14,766,682	2,677,249
United Kingdom:						
Cocoa...........pounds..	11,660,464	1,538,225	12,903,640	1,633,424	21,062,767	2,578,996
Tea.................do....	12,238,114	3,619,098	14,077,601	3,858,970	12,869,968	3,386,476

TABLE 192.—*Principal farm products exported to specified countries from the United States, 1913–1915.*

Country to which consigned, and article.	Year ending June 30—					
	1913		1914		1915	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Belgium:						
Corn..............bushels..	1,648,089	$967,838	60,227	$38,198	103,927	$82,324
Wheat................do....	10,601,248	10,402,577	12,873,372	12,479,315	5,320,685	6,392,090
Bacon............pounds..	9,140,688	1,280,658	5,110,170	743,371	5,737,181	603,344
Hams and shoulders..do....	5,821,638	792,214	4,080,669	563,140	6,596,068	801,837
Lard.................do....	18,761,624	2,074,640	15,915,380	1,833,325	5,128,630	528,764
Brazil: Wheat flour..barrels..	583,418	3,105,239	748,612	3,752,105	707,705	3,972,690
Canada:						
Corn..............bushels..	8,097,882	4,766,805	4,641,737	3,328,785	8,283,156	6,154,904
Wheat................do....	851,139	829,447	4,113,701	3,821,159	19,848,674	20,180,588
Wheat flour........barrels..	98,665	450,104	122,752	539,942	110,927	591,929
Bacon............pounds..	6,868,480	14007,014	11,082,930	1,644,388	10,025,242	1,363,621
Hams and shoulders..do....	6,785,477	1,046,349	4,006,649	672,855	1,514,602	219,257
Lard.................do....	11,079,696	1,251,425	15,995,669	1,847,515	7,721,616	887,910
Pork, pickled.........do....	9,436,506	943,799	12,825,741	1,373,501	8,500,049	870,937
China: Wheat flour..barrels..	127,814	493,364	136,374	540,154	13,273	57,066
Cuba:						
Corn..............bushels..	2,372,678	1,696,821	2,410,156	1,878,664	2,267,305	1,896,907
Wheat flour........barrels..	907,786	4,311,027	892,705	4,057,806	924,989	5,379,266
Bacon............pounds..	6,658,202	804,616	13,733,773	1,634,755	13,360,139	1,616,045
Hams and shoulders..do....	6,002,471	936,058	5,637,829	940,720	6,842,425	1,127,283
Lard.................do....	46,526,427	5,181,445	49,609,751	5,582,074	45,349,283	5,011,657
Pork, pickled.........do....	9,141,098	943,303	4,090,780	447,374	3,874,892	428,050
Denmark: Corn.....bushels..	5,389,897	3,021,673	118	95	11,169,550	9,052,044
Finland: Wheat flour.barrels..	405,832	2,060,268	429,354	2,085,441	35,588	165,057
France:						
Wheat............bushels..	4,931,708	4,994,638	5,536,731	5,384,663	49,878,655	66,352,832
Bacon............pounds..	2,096,868	236,160	197,353	25,416	44,712,253	5,766,832
Lard.................do....	17,428,157	1,807,530	5,307,986	573,493	32,172,876	3,503,946
Germany:						
Corn..............bushels..	6,545,521	3,696,182	303,303	225,209	15,785	16,500
Wheat................do....	12,112,223	11,950,009	10,983,060	10,604,692	2,652,128	2,487,115
Wheat flour........barrels..	170,345	860,305	176,485	891,171	8,240	42,841
Lard..............pounds..	160,862,204	18,079,275	146,208,598	16,593,043	3,878,433	412,751
Lard, neutral.........do....	9,368,924	1,078,006	6,309,792	709,101	312,933	44,176
Oleo oil...............do....	17,480,760	2,054,694	16,180,268	1,631,254	1,001,252	98,081
Hongkong: Wheat flour, barrels..........................	1,301,306	5,126,960	1,141,095	4,501,672	626,978	2,840,779
Italy:						
Wheat............bushels..	7,217,479	7,419,597	1,839,830	1,789,400	47,122,740	66,530,785
Lard..............pounds..	6,106,153	657,097	5,958,983	616,948	4,123,209	451,326
Japan: Wheat flour...barrels..	878,623	3,383,842	793,269	3,045,532	68,542	279,315
Mexico:						
Corn..............bushels..	543,340	407,897	467,424	379,675	1,587,420	1,388,902
Wheat................do....	644,377	665,780	306,376	313,910	296,581	380,697
Lard..............pounds..	8,468,353	977,313	3,294,437	392,580	3,191,515	365,024
Netherlands:						
Corn..............bushels..	7,192,420	4,071,068	373,770	287,417	15,875,674	12,969,647
Wheat................do....	14,832,000	14,805,115	19,949,519	19,380,347	31,551,992	42,070,210
Wheat flour........barrels..	859,987	4,279,394	958,063	4,669,565	1,725,807	10,553,446
Bacon............pounds..	7,639,281	906,263	1,718,481	204,260	8,284,647	1,199,393
Lard.................do....	43,383,774	4,940,671	43,469,536	4,859,367	22,245,433	2,589,995
Lard, neutral.........do....	27,123,927	3,090,156	13,174,294	1,438,696	9,847,645	1,142,321
Oleo oil...............do....	46,337,137	5,392,489	47,414,421	4,944,474	32,767,906	3,637,839
Norway: Oleo oil.......do....	6,607,526	754,728	7,285,043	764,333	9,954,544	1,160,460
Philippine Islands: Wheat flour.............barrels..	370,939	1,485,195	236,902	944,747	303,792	1,647,098
United Kingdom:						
Corn..............bushels..	14,982,604	8,652,721	540,515	388,620	2,840,252	2,297,878
Wheat................do....	31,548,507	29,647,560	27,961,348	26,015,351	65,911,501	80,039,502
Wheat flour........barrels..	2,428,167	11,989,155	2,809,800	13,805,674	4,156,097	23,668,245
Bacon............pounds..	138,133,416	17,758,929	132,819,680	18,103,518	201,042,923	28,388,432
Hams and shoulders..do....	134,016,686	17,773,973	146,007,141	20,558,228	179,376,833	25,440,034
Lard.................do....	168,379,790	18,796,802	164,632,676	18,412,791	189,349,874	20,650,513
Oleo oil...............do....	8,008,915	964,101	9,243,952	1,010,834	14,361,603	1,734,445
Pork, pickled.........do....	14,619,714	1,688,301	5,571,720	624,462	6,534,240	700,078

TABLE 193.—*Shipments of principal domestic farm and forest products from the United States to Hawaii and Porto Rico, 1913–1915.*

[These shipments are not included in the domestic exports from or imports into the United States.]

Possession and article.	Year ending June 30—					
	1913		1914		1915	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
HAWAII.						
Dairy products......pounds..	3,937,495	$578,337	4,275,534	$562,516	4,915,195	$582,811
Meat products		719,974		528,960		535,687
Grain and grain products		2,282,034		2,221,197		2,479,349
Rice..............pounds..	4,033,865	189,986	5,031,515	216,252	974.272	39,755
Lumber		1,502,117		876,544		1,131,768
PORTO RICO.						
Dairy products......pounds..	2,833,463	288,465	2,210,881	207,817	2,496,076	267,491
Meat products		3,211,247		3,678,741		3,382,875
Beans and dried peas..bushels..	199,823	534,965	163,843	469,661	190,793	672,163
Grain and grain products		2,585,826		2,248,045		2,756,391
Rice..............pounds..	128,748,080	5,069,527	139,836,581	5,306,364	127,310,116	4,851,533
Sugar..............do....	13,443,894	636,012	16,855,067	727,966	12,329,041	648,414
Tobacco............do....	2,337,501	373,975	1,627,405	327,790	1,106,120	178,924
Lumber		1,194,154		969,124		633,747

TABLE 194.—*Shipments of principal domestic farm products from Hawaii and Porto Rico to the United States.*

Possession and article.	Year ending June 30—					
	1913		1914		1915	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
HAWAII.						
Coffee..............pounds..	2,149,875	$352,965	4,430,722	$657,853	3,191,274	$486,054
Pineapples, canned		3,566,201		4,536,919		5,986,190
Sugar..............pounds..	1,085,362,344	36,607,820	1,114,750,702	33,187,920	1,280,683,812	52,949,697
PORTO RICO.						
Grapefruit..........boxes..	216,216	726,687	206,200	751,769	276,550	834,356
Oranges..............do....	353,633	740,010	348,870	752,088	200,268	378,092
Pineapples		1,142,007		1,245,215		1,723,694
Molasses and sirup...gallons..	11,150,572	607,747	15,577,832	927,227	12,004,811	658,661
Sugar..............pounds..	765,420,310	26,619,158	641,252,527	20,239,831	588,922,493	27,277,839
Tobacco, leaf..........do....	6,952,467	3,006,854	6,308,227	2,961,614	7,035,777	2,951,804

TABLE 195.—*Destination of principal farm products exported from the United States, 1912–1915.*

Article, and country to which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
ANIMAL MATTER.								
Cattle:	*Number.*	*Number.*	*Number.*	*Number.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Canada	6,705	11,691	8,957	751	6.4	47.3	48.7	13.7
United Kingdom	76,925	1,773	....	....	72.9	7.2	....	....
Other countries	21,876	11,250	9,419	4,733	20.7	45.5	51.3	86.3
Total	105,506	24,714	18,376	5,484	100.0	100.0	100.0	100.0
Horses:								
Canada	31,910	26,560	17,700	42,036	91.6	92.5	77.7	14.5
United Kingdom	517	430	609	92,737	1.5	1.5	2.7	32.1
Other countries	2,401	1,717	4,467	154,567	6.9	6.0	19.6	53.4
Total	34,828	28,707	22,776	289,340	100.0	100.0	100.0	100.0
Butter:								
Central American States and British Honduras	*Pounds.* 565,320	*Pounds.* 775,246	*Pounds.* 810,254	*Pounds.* 726,562	9.3	21.6	21.9	7.4
West Indies and Bermuda	1,488,538	1,392,508	1,158,111	1,144,352	24.4	38.8	31.4	11.6
Other countries	4,038,377	1,417,846	1,725,232	7,979,790	66.3	39.6	46.7	81.0
Total	6,092,235	3,585,600	3,693,597	9,850,704	100.0	100.0	100.0	100.0
Meat products:								
Beef products—								
Beef, canned—								
United Kingdom	5,743,114	3,117,149	1,157,104	64,700,738	52.1	45.6	33.4	86.0
Other countries	5,283,317	3,723,199	2,307,629	10,573,870	47.9	54.4	66.6	14.0
Total	11,026,431	6,840,348	3,464,733	75,274,608	100.0	100.0	100.0	100.0
Beef, fresh—								
Panama	5,400,785	5,935,198	5,534,391	3,706,596	35.4	80.6	86.6	2.2
United Kingdom	8,872,378	126,885	....	54,497,192	58.1	1.7	....	32.0
Other countries	991,157	1,300,305	860,013	112,237,146	6.5	17.7	13.4	65.8
Total	15,264,320	7,362,388	6,394,404	170,440,934	100.0	100.0	100.0	100.0
Beef, pickled, and other cured—								
Canada	1,752,093	712,086	1,331,150	1,659,165	4.6	2.8	5.7	5.2
Germany	4,616,317	3,080,823	1,757,786	378,548	12.1	11.9	7.6	1.2
Newfoundland and Labrador	5,077,404	3,807,237	4,935,657	4,331,261	13.3	14.7	21.2	13.6
West Indies and Bermuda	5,493,842	4,274,549	3,900,281	2,697,974	14.4	16.5	16.8	8.5
United Kingdom	8,747,355	5,929,949	4,113,347	10,994,101	23.0	22.9	17.7	34.5
Other countries	12,400,896	8,052,275	7,227,753	11,813,694	32.6	31.2	31.0	37.0
Total	38,087,907	25,856,919	23,265,974	31,874,743	100.0	100.0	100.0	100.0
Oleo oil—								
Germany	18,042,333	17,480,760	16,180,268	1,001,252	14.3	18.8	16.7	1.2
Netherlands	66,894,182	46,337,137	47,414,421	32,767,906	52.9	49.9	48.9	40.7
Norway	9,004,322	6,607,526	7,285,043	9,954,544	7.1	7.1	7.5	12.4
United Kingdom	9,959,942	8,008,915	9,243,952	14,361,603	7.9	8.6	9.5	17.8
Other countries	22,566,345	14,415,419	16,893,381	22,396,641	17.8	15.6	17.4	27.9
Total	126,467,124	92,849,757	97,017,065	80,481,946	100.0	100.0	100.0	100.0

TABLE 195.—*Destination of principal farm products exported from the United States, 1912–1915*—Continued.

Article, and country to which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
ANIMAL MATTER—continued.								
Meat products—Con.								
Lard compounds—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Cuba	17,214,452	17,525,703	14,673,201	19,046,472	27.5	26.0	25.2	27.2
Mexico	6,768,838	4,127,593	3,119,285	3,772,943	10.8	6.1	5.4	5.4
United Kingdom	17,853,640	21,115,679	19,929,949	26,357,467	28.6	31.3	34.2	37.7
Other countries	20,685,958	24,687,857	20,581,129	20,803,732	33.1	36.6	35.2	29.7
Total	62,522,888	67,456,832	58,303,564	69,980,614	100.0	100.0	100.0	100.0
Pork products—								
Bacon—								
Belgium	4,503,110	9,140,688	5,110,170	5,737,181	2.2	4.5	2.6	1.7
Canada	3,342,270	6,868,480	11,082,930	10,025,242	1.6	3.4	5.7	2.9
Cuba	4,822,680	6,658,202	13,733,773	13,360,139	2.3	3.3	7.1	3.9
France	9,418,140	2,096,868	197,353	44,712,253	4.5	1.0	.1	12.9
Netherlands	7,271,025	7,639,281	1,718,481	8,284,647	3.5	3.8	.9	2.4
United Kingdom	147,448,565	138,133,416	132,819,680	201,042,923	70.7	68.7	68.5	58.0
Other countries	31,768,418	30,456,649	29,301,865	63,555,842	15.2	15.3	15.1	18.2
Total	208,574,208	200,993,584	193,964,252	346,718,227	100.0	100.0	100.0	100.0
Hams and shoulders, cured—								
Belgium	15,017,836	5,821,638	4,080,669	6,596,068	7.4	3.6	2.5	3.2
Canada	6,281,607	6,785,477	4,006,649	1,514,602	3.1	4.3	2.4	.7
Cuba	5,084,977	6,002,471	5,637,829	6,842,425	2.5	3.8	3.4	3.4
United Kingdom	169,675,214	134,016,686	146,007,141	179,376,833	83.2	84.0	88.0	88.1
Other countries	7,984,857	6,918,415	6,149,503	9,371,185	3.8	4.3	3.7	4.6
Total	204,044,491	159,544,687	165,881,791	203,701,114	100.0	100.0	100.0	100.0
Lard—								
Belgium	21,743,806	18,761,624	15,915,380	5,128,630	4.1	3.6	3.3	1.1
Canada	7,968,353	11,079,696	15,995,669	7,721,616	1.5	2.1	3.3	1.6
Cuba	42,548,701	46,526,427	49,609,751	45,349,283	8.0	9.0	10.3	9.5
France	24,474,920	17,428,157	5,307,986	32,172,876	4.6	3.4	1.1	6.8
Germany	159,473,899	160,862,204	146,208,598	3,878,433	30.0	31.0	30.4	.8
Italy	3,170,799	6,106,153	5,958,983	4,123,209	.6	1.2	1.2	.9
Mexico	8,366,011	8,468,353	3,294,437	3,191,515	1.6	1.6	.7	.7
Netherlands	38,675,175	43,383,774	43,469,536	22,245,433	7.3	8.4	9.0	4.7
United Kingdom	186,125,234	168,379,790	164,632,676	189,349,874	35.0	32.4	34.2	39.8
Other countries	39,708,967	38,029,206	31,064,776	162,371,039	7.3	7.3	6.5	34.1
Total	532,255,865	519,025,384	481,457,792	475,531,908	100.0	100.0	100.0	100.0
Lard, neutral—								
Germany	12,666,387	9,368,924	6,309,792	312,933	20.3	20.9	21.5	1.2
Netherlands	40,110,521	27,123,927	13,174,294	9,847,645	64.4	60.6	44.9	37.8
Other countries	9,541,001	8,284,841	9,839,700	15,860,476	15.3	18.5	33.6	61.0
Total	62,317,909	44,777,692	29,323,786	26,021,054	100.0	100.0	100.0	100.0
Pork, pickled—								
Canada	11,156,806	9,436,506	12,825,741	8,500,049	19.8	17.6	28.2	18.6
Cuba	9,988,925	9,141,098	4,090,780	3,874,892	17.7	17.0	9.0	8.5
Newfoundland and Labrador	6,570,510	5,672,961	7,911,743	5,244,462	11.7	10.6	17.4	11.5
United Kingdom	13,500,861	14,619,714	5,571,720	6,534,240	24.0	27.2	12.2	14.3
Other countries	15,104,367	14,878,744	15,143,101	21,501,931	26.8	27.6	33.2	47.1
Total	56,321,469	53,749,023	45,543,085	45,655,574	100.0	100.0	100.0	100.0

TABLE 195.—*Destination of principal farm products exported from the United States, 1912–1915*—Continued.

Article, and country to which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
VEGETABLE MATTER.								
Cotton:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Austria-Hungary	62,781,705	56,591,125	53,255,407	227,373	1.1	1.2	1.1	.0
Belgium	105,951,588	113,483,414	113,736,761	2,528,388	1.9	2.5	2.4	.1
Canada	90,832,199	76,007,216	75,496,339	91,395,082	1.6	1.7	1.6	2.1
France	614,146,911	537,493,608	569,699,520	346,349,629	11.1	11.8	12.0	7.9
Germany	1,578,085,504	1,221,943,252	1,442,161,777	147,096,823	28.5	26.8	30.3	3.3
Italy	318,038,666	250,411,639	268,678,515	563,700,142	5.7	5.5	5.6	12.8
Japan	240,467,144	198,389,341	176,720,027	214,403,032	4.3	4.3	3.7	4.9
Mexico	8,064,183	10,488,465	17,335,397	19,863,621	.1	.2	.4	.5
Russia, European	55,878,081	37,453,772	49,538,075	41,062,654	1.0	.8	1.0	.9
Spain	156,749,987	158,976,935	148,669,641	232,251,950	2.8	3.5	3.1	5.3
United Kingdom	2,171,554,173	1,858,449,027	1,790,750,498	1,959,874,664	39.2	40.7	37.6	44.5
Other countries	132,575,288	42,607,881	54,898,581	784,825,141	2.7	1.0	1.2	17.7
Total	5,535,125,429	4,562,295,675	4,760,940,538	4,403,578,499	100.0	100.0	100.0	100.0
Fruits:								
Apples, dried—								
Germany	27,598,728	17,970,592	17,645,697	108,434	51.4	43.2	52.6	.3
Netherlands	14,396,795	12,846,054	9,147,104	5,200,178	26.8	30.9	27.3	12.2
Other countries	11,669,116	10,757,916	6,773,359	37,280,557	21.8	25.9	20.1	87.5
Total	53,664,639	41,574,562	33,566,160	42,589,169	100.0	100.0	100.0	100.0
Apples, fresh—	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*				
Germany	122,823	272,382	168,792	1,747,386	8.4	12.7	11.2	74.3
United Kingdom	994,524	1,318,426	827,028	318,840	68.3	61.3	54.9	13.6
Other countries	339,034	559,324	510,749	285,275	23.3	26.0	33.9	12.1
Total	1,456,381	2,150,132	1,506,569	2,351,501	100.0	100.0	100.0	100.0
Apricots, dried—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
France	1,169,110	4,214,153	3,074,146	1,911,296	8.7	12.0	17.7	8.0
Germany	5,223,162	7,806,944	3,841,032	289,850	38.9	22.3	22.1	1.2
Netherlands	960,757	3,625,314	2,064,471	1,285,632	7.2	10.4	11.9	5.4
United Kingdom	3,012,091	13,174,672	4,473,534	9,017,358	22.5	37.6	25.7	37.9
Other countries	3,048,310	6,195,647	3,948,509	11,260,206	22.7	17.7	22.6	47.5
Total	13,413,430	35,016,730	17,401,692	23,764,342	100.0	100.0	100.0	100.0
Oranges—	*Boxes.*	*Boxes.*	*Boxes.*	*Boxes.*				
Canada	1,152,866	1,017,545	1,491,539	1,682,824	96.3	95.7	95.7	95.6
Other countries	44,497	45,688	67,382	76,581	3.7	4.3	4.3	4.4
Total	1,197,363	1,063,233	1,558,921	1,759,405	100.0	100.0	100.0	100.0
Prunes—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
Canada	13,503,157	10,956,827	12,757,585	9,321,355	18.2	9.3	18.3	21.4
France	6,158,115	11,962,280	13,514,086	1,129,323	8.3	10.1	19.4	2.6
Germany	31,416,210	49,084,901	17,417,865	1,100	42.3	41.6	24.9	.0
United Kingdom	6,586,572	8,492,618	11,175,968	10,368,576	8.9	7.2	16.0	23.8
Other countries	16,664,020	37,454,249	14,948,207	22,658,538	22.3	31.8	21.4	52.2
Total	74,328,074	117,950,875	69,813,711	43,478,892	100.0	100.0	100.0	100.0
Fruits, canned—	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*				
United Kingdom	2,690,834	3,892,646	3,182,051	4,924,824	67.1	69.5	65.4	81.2
Other countries	1,321,629	1,706,727	1,681,895	1,139,941	32.9	30.5	34.6	18.8
Total	4,012,463	5,599,373	4,863,946	6,064,765	100.0	100.0	100.0	100.0
Glucose and grape sugar:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
United Kingdom	137,249,475	155,597,018	162,715,262	131,751,252	80.2	77.7	81.5	83.1
Other countries	33,906,784	44,552,228	36,815,612	26,711,256	19.8	22.3	18.5	16.9
Total	171,156,259	200,149,246	199,530,874	158,462,508	100.0	100.0	100.0	100.0

TABLE 195.—*Destination of principal farm products exported from the United States, 1912–1915*—Continued.

Article, and country to which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
VEGETABLE MATTER—continued.								
Grain and grain products:								
Corn—	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Belgium	1,406,508	1,648,089	60,227	103,927	3.5	3.4	.6	.2
Canada	9,568,574	8,097,882	4,641,737	8,283,156	23.9	16.5	49.5	17.0
Cuba	2,117,724	2,372,678	2,410,156	2,267,305	5.3	4.8	25.7	4.6
Denmark	1,545,624	5,389,897	118	11,169,550	3.9	11.0	......	22.9
Germany	6,800,562	6,545,521	303,303	15,785	17.0	13.3	3.2	.0
Mexico	1,168,145	543,340	467,424	1,587,420	2.9	1.1	5.0	3.3
Netherlands	5,657,976	7,192,420	373,770	15,875,674	14.1	14.7	4.0	32.5
United Kingdom	10,616,488	14,982,604	540,515	2,840,252	26.5	30.5	5.8	5.8
Other countries	1,157,194	2,292,536	583,605	6,643,222	2.9	4.7	6.2	13.7
Total	40,038,795	49,064,967	9,380,855	48,786,291	100.0	100.0	100.0	100.0
Wheat—								
Belgium	4,054,171	10,601,248	12,873,372	5,320,685	13.4	11.6	13.9	2.0
Canada	537,240	851,139	4,113,701	19,848,674	1.8	.9	4.5	7.6
France	35,977	4,931,708	5,536,731	49,878,655	.1	5.4	6.0	19.2
Germany	1,586,666	12,112,223	10,983,060	2,652,128	5.3	13.2	11.9	1.0
Italy	533,009	7,217,479	1,839,830	47,122,740	1.8	7.9	2.0	18.1
Mexico	1,491,156	644,377	306,376	296,581	4.9	.7	.3	.1
Netherlands	3,388,444	14,832,000	19,949,519	31,551,992	11.2	16.2	21.6	12.2
United Kingdom	15,765,454	31,548,507	27,961,348	65,911,501	52.3	34.4	30.3	25.4
Other countries	2,768,095	8,864,293	8,829,838	37,059,577	9.2	9.7	9.5	14.4
Total	30,160,212	91,602,974	92,393,775	259,642,533	100.0	100.0	100.0	100.0
Wheat flour—	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*				
Brazil	625,399	583,418	748,612	707,705	5.7	5.1	6.3	4.4
Canada	99,760	98,665	122,752	110,927	.9	.9	1.0	.7
China	741,192	127,814	136,374	13,273	6.7	1.1	1.2	.1
Cuba	842,168	907,786	892,705	924,989	7.7	8.0	7.6	5.7
Finland	175,575	405,832	429,354	35,588	1.6	3.6	3.6	.2
Germany	130,328	170,345	176,485	8,240	1.2	1.5	1.5	.1
Haiti	324,736	288,495	208,266	112,620	3.0	2.5	1.8	.7
Hongkong	1,491,073	1,301,306	1,141,095	626,978	13.5	11.4	9.7	3.9
Japan	716,347	878,623	793,269	68,542	6.5	7.7	6.7	.4
Netherlands	675,429	859,987	958,063	1,725,807	6.1	7.5	8.1	10.7
Philippine Islands	308,671	370,939	236,902	303,792	2.8	3.3	2.0	1.9
United Kingdom	2,372,797	2,428,167	2,809,800	4,156,097	21.6	21.3	23.8	25.7
Other countries	2,503,012	2,973,428	3,167,784	7,388,207	22.7	26.1	26.7	45.5
Total	11,006,487	11,394,805	11,821,461	16,182,765	100.0	100.0	100.0	100.0
Hops:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
Canada	1,325,506	1,035,729	1,214,028	1,071,601	10.9	5.9	5.0	6.6
United Kingdom	10,463,164	15,409,093	22,219,620	13,823,889	85.8	87.6	91.6	85.3
Other countries	401,993	1,146,373	829,248	1,314,953	3.3	6.5	3.4	8.1
Total	12,190,663	17,591,195	24,262,896	16,210,443	100.0	100.0	100.0	100.0
Oil cake and oil-cake meal:								
Cottonseed—								
Belgium	42,981,422	38,953,330	19,685,564	223,100	3.3	3.5	2.5	.0
Denmark	413,512,583	429,490,872	347,584,172	1,067,161,664	32.0	38.1	43.4	72.2
Germany	451,358,869	364,266,905	240,348,664	6,819,250	35.9	32.3	30.0	.5
Netherlands	77,676,167	62,479,858	22,310,420	15,469,040	6.0	5.5	2.8	1.0
United Kingdom	247,440,239	163,960,512	131,292,496	173,948,786	19.1	14.5	16.4	11.8
Other countries	60,720,858	68,940,890	38,752,936	215,443,175	4.7	6.1	4.9	14.5
Total	1,293,690,138	1,128,092,367	799,974,252	1,479,065,015	100.0	100.0	100.0	100.0

TABLE 195.—*Destination of principal farm products exported from the United States, 1912–1915*—Continued.

Article, and country to which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
VEGETABLE MATTER—continued.								
Oil cake and oil-cake meal—Contd.								
Linseed or flaxseed—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Belgium	239 849,696	330,952,259	332,697,680	26,931,718	40.2	39.5	50.2	5.1
France	40,747,747	49,700,150	20,671,619	1,375,773	6.9	5.9	3.1	.3
Netherlands	265,879,242	391,513,427	266,792,954	431,248,843	44.6	46.7	40.2	82.2
United Kingdom	36,358,331	53,796,998	29,084,892	22,829,656	6.1	6.4	4.4	4.4
Other countries	13,279,520	12,156,820	13,621,494	42,408,444	2.2	1.5	2.1	8.0
Total	596,114,536	838,119,654	662,868,639	524,794,434	100.0	100.0	100.0	100.0
Oils, vegetable:								
Cottonseed—								
Argentina	8,893,927	14,708,379	14,989,927	17,314,259	2.2	4.7	7.8	5.4
Austria-Hungary	9,222,768	8,475,683	4,211,198	70,394	2.3	2.7	2.2	.0
Belgium	9,834,185	1,970,255	3,452,229	11,646	2.5	.6	1.8	.0
Canada	22,659,718	25,227,397	25,493,039	20,578,973	5.7	8.0	13.2	6.5
France	25,596,365	17,924,337	8,268,808	8,425,210	6.4	5.7	4.3	2.6
Germany	24,798,799	13,440,312	7,682,622	62,871	6.2	4.3	4.0	.0
Italy	36,670,719	39,516,645	14,015,326	15,782,234	9.2	12.5	7.3	5.0
Mexico	28,961,136	23,743,576	6,219,064	4,821,390	7.2	7.5	3.2	1.5
Netherlands	97,590,174	75,349,314	26,994,772	90,979,466	24.4	23.9	14.0	28.6
Norway	8,028,128	8,986,253	6,985,490	26,442,259	2.0	2.9	3.6	8.3
Turkey, European	11,931,876	12,556,417	4,947,994	354,910	3.0	4.0	2.6	.1
United Kingdom	71,420,689	31,845,444	31,071,865	84,378,878	17.9	10.1	16.1	26.5
Other countries	43,862,489	41,488,880	38,630,745	49,144,035	11.0	13.1	19.9	15.5
Total	399,470,973	315,232,892	192,963,079	318,366,525	100.0	100.0	100.0	100.0
Tobacco, leaf, stems, and trimmings:								
Belgium	10,072,410	10,235,594	11,677,604	1,131,439	2.7	2.4	2.6	.3
British Africa	6,357,617	8,377,246	6,600,312	4,655,691	1.7	2.0	1.5	1.3
British Oceania	10,870,147	17,516,283	13,186,680	9,042,967	2.9	4.2	2.9	2.6
Canada	15,095,925	16,309,480	17,688,562	16,156,268	4.0	3.9	3.9	4.6
China	6,635,350	6,641,628	11,445,697	3,478,641	1.7	1.6	2.5	1.0
France	47,186,921	49,131,788	54,915,178	37,710,975	12.4	11.7	12.2	10.8
Germany	41,964,300	30,054,681	32,057,051	10,018,503	11.0	7.2	7.1	2.9
Italy	39,403,429	44,779,059	45,190,995	24,279,246	10.4	10.7	10.0	7.0
Japan	2,947,452	5,266,034	3,696,273	3,110,555	.8	1.3	.8	.9
Netherlands	27,277,631	26,688,355	28,233,746	21,223,143	7.2	6.4	6.3	6.1
Spain	28,674,906	23,081,022	16,822,696	7,030	7.5	5.5	3.7	.0
United Kingdom	120,936,936	150,110,570	174,779,326	189,345,349	31.8	35.8	38.9	54.4
Other countries	22,422,296	30,605,166	33,455,862	28,186,284	5.9	7.3	7.6	8.1
Total	379,845,320	418,796,906	449,749,982	348,346,091	100.0	100.0	100.0	100.0
FOREST PRODUCTS.								
Naval stores:								
Rosin—	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*				
Argentina	122,333	131,286	102,028	143,407	4.9	4.7	4.2	10.4
Austria-Hungary	103,959	84,070	66,257	....	4.2	3.0	2.7	....
Belgium	163,345	141,013	111,735	80,267	6.6	5.0	4.6	5.8
Brazil	176,964	180,701	99,632	105,529	7.2	6.4	4.1	7.7
Canada	93,464	86,702	77,064	74,113	3.8	3.1	3.2	5.4
Germany	681,476	809,745	796,757	53,331	27.5	28.9	33.0	3.9
Italy	102,685	116,019	109,380	94,217	4.1	4.1	4.5	6.9
Netherlands	194,552	228,360	247,339	48,883	7.9	8.1	10.2	3.6
Russia, European	98,103	143,336	144,653	5,447	4.0	5.1	6.0	.4
United Kingdom	503,516	632,515	504,400	500,545	20.3	22.5	20.9	36.5
Other countries	234,063	252,299	158,705	266,577	9.5	9.1	6.6	19.4
Total	2,474,460	2,806,046	2,417,950	1,372,316	100.0	100.0	100.0	100.0

TABLE 195.—*Destination of principal farm products exported from the United States, 1912–1915*—Continued.

Article, and country to which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
FOREST PRODUCTS—continued.								
Naval stores—Con.								
Turpentine, spirits of—	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Belgium	1,428,710	1,872,893	1,027,355	113,672	7.3	8.9	5.4	1.2
British Oceania	859,605	686,989	499,248	708,843	4.4	3.3	2.7	7.5
Canada	920,612	1,039,768	1,114,863	917,912	4.7	4.9	5.9	9.7
Germany	2,812,160	3,849,191	3,275,929	196,622	14.4	18.3	17.3	2.1
Netherlands	3,379,518	4,242,340	4,393,902	625,736	17.2	20.2	23.2	6.6
United Kingdom	7,865,713	7,432,271	7,109,851	5,338,724	40.1	35.3	37.6	56.4
Other countries	2,332,923	1,916,145	1,479,556	1,562,611	11.9	9.1	7.9	16.5
Total	19,599,241	21,039,597	18,900,704	9,464,120	100.0	100.0	100.0	100.00
Wood:								
Lumber—								
Boards, deals, planks, joists, and scantling—	*M feet.*	*M feet.*	*M feet.*	*M feet.*				
Argentina	325,525	248,363	208,177	66,754	13.9	9.6	8.6	5.9
Belgium	64,970	78,662	62,772	8,793	2.8	3.1	2.6	.8
Brazil	59,866	69,823	38,125	10,370	2.6	2.7	1.6	.9
British Oceania	218,431	260,473	293,009	187,484	9.3	10.1	12.1	16.5
Canada	553,090	545,257	434,399	182,734	23.6	21.2	18.0	16.1
Central American States and British Honduras	52,483	56,509	81,251	45,787	2.2	2.2	3.4	4.0
China	33,668	88,749	107,115	56,238	1.4	3.4	4.4	5.0
Cuba	122,846	137,982	122,938	87,955	5.2	5.4	5.1	7.7
France	24,604	30,202	39,563	6,145	1.1	1.2	1.6	.5
Germany	74,068	83,752	69,852	7,983	3.2	3.3	2.9	.7
Italy	35,397	44,319	53,623	20,662	1.5	1.7	2.2	1.8
Mexico	106,574	121,657	69,111	31,296	4.6	4.7	2.9	2.8
Netherlands	102,012	125,201	120,661	17,218	4.4	4.9	5.0	1.5
Philippine Islands	24,222	15,747	22,485	6,623	1.0	.6	.9	.6
United Kingdom	226,537	333,390	332,457	260,098	9.7	12.9	13.8	22.9
Other countries	316,616	336,147	361,901	139,072	13.5	13.0	14.9	12.3
Total	2,340,909	2,576,233	2,417,439	1,135,212	100.0	100.0	100.0	100.0
Timber, hewn and sawed—								
Canada	53,462	39,705	37,846	15,382	12.2	7.8	8.6	8.9
France	20,132	39,950	32,047	6,192	4.6	7.8	7.3	3.6
Germany	25,211	32,023	17,506	2,337	5.8	6.3	4.0	1.3
Italy	51,260	44,726	65,314	25,763	11.7	8.7	14.8	14.8
Netherlands	64,327	60,692	57,776	6,733	14.7	11.9	13.1	3.9
United Kingdom	156,317	213,016	186,906	99,318	35.7	41.6	42.4	57.1
Other countries	67,312	81,525	43,771	18,064	15.3	15.9	9.8	10.4
Total	438,021	511,637	441,166	173,789	100.0	100.0	100.0	100.0

Table 196.—*Origin of principal farm products imported into the United States, 1912–1915.*

Article, and country from which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
ANIMAL MATTER.								
Cattle:	*Number.*	*Number.*	*Number.*	*Number.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Mexico	315,227	391,477	625,253	343,809	99.0	92.8	72.0	63.9
Other countries	3,145	30,172	243,115	194,358	1.0	7.2	28.0	36.1
Total	318,372	421,649	868,368	538,167	100.0	100.0	100.0	100.0
Horses:								
Canada	1,828	2,063	4,435	3,515	27.7	20.6	13.4	27.8
France	1,692	1,925	1,171	235	25.6	19.2	3.5	1.9
Other countries	3,087	6,020	27,413	8,902	46.7	60.2	83.1	70.3
Total	6,607	10,008	33,019	12,652	100.0	100.0	100.0	100.0
Dairy products:								
Cheese, including substitutes—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
France	3,882,891	3,982,513	5,418,904	3,554,297	8.3	8.1	8.5	7.1
Italy	20,625,202	21,326,445	26,453,826	25,662,434	44.3	43.2	41.5	51.2
Switzerland	15,147,393	17,371,616	22,490,006	14,766,682	32.5	35.2	35.3	29.5
Other countries	6,886,521	6,707,370	9,421,577	6,155,107	14.9	13.5	14.7	12.2
Total	46,542,007	49,387,944	63,784,313	50,138,520	100.0	100.0	100.0	100.0
Fibers, animal:								
Silk, raw—								
China	4,776,506	5,510,607	5,926,745	5,097,169	22.1	21.2	20.7	19.6
Italy	2,058,456	2,811,606	1,997,428	2,610,570	9.5	10.8	7.0	10.0
Japan	14,493,131	17,425,353	20,196,212	18,217,083	67.1	66.9	70.6	70.0
Other countries	281,427	301,906	474,287	106,103	1.3	1.1	1.7	.4
Total	21,609,520	26,049,472	28,594,672	26,030,925	100.0	100.0	100.0	100.0
Wool, class 1—								
Argentina	21,450,715	22,603,402	30,959,660	65,373,017	30.1	33.6	24.8	29.4
Australia, Commonwealth of	12,971,908	5,619,342	23,757,714	66,063,841	18.2	8.4	19.0	29.8
Belgium	62,478	266,930	4,581,419	3,002,967	.1	.4	3.7	1.4
New Zealand	2,923,527	6,306,874	4,710,748	384,145	4.1	9.4	3.8	.2
United Kingdom	30,928,128	29,368,707	45,223,714	38,897,503	4.34	43.7	36.2	17.5
Uruguay	2,666,702	2,657,620	7,972,159	14,584,962	3.7	4.0	6.4	6.6
Other countries	199,871	415,840	7,883,347	33,710,985	.4	.5	6.1	15.1
Total	71,203,329	67,238,715	125,088,761	222,017,420	100.0	100.0	100.0	100.0
Wool, class 2—								
Canada	631,216	243,908	4,542,139	5,094,660	4.1	1.4	24.1	33.8
United Kingdom	11,772,512	13,505,151	12,301,661	8,607,638	75.7	80.0	65.3	57.2
Other countries	3,153,936	3,137,387	1,995,898	1,352,396	20.2	18.6	10.6	9.0
Total	15,557,664	16,886,446	18,839,698	15,054,694	100.0	100.0	100.0	100.0
Wool, class 3—								
Argentina	4,429,123	2,337,196	5,452,526	10,509,249	4.2	2.1	5.3	16.0
British East Indies	4,440,606	3,962,811	2,788,130	859,121	4.2	3.6	2.7	1.3
China	32,060,405	35,926,815	29,884,054	35,455,392	30.1	32.3	29.3	54.0
Russia (Asiatic and European)	20,757,933	25,645,077	22,627.514	2,211,018	19.5	23.1	22.2	3.4
Turkey (Asiatic)	7,780,616	7,394,257	5,350,091	2,486,957	7.3	6.7	5.2	3.8
United Kingdom	23,122,561	20,900,746	22,105,267	10,233,744	21.7	18.8	21.7	15.6
Other countries	14,048,476	15,001,192	13,795,731	3,954,271	13.0	13.4	13.6	5.9
Total	106,639,720	111,168,094	102,003,313	65,709,752	100.0	100.0	100.0	100.0

TABLE 196.—*Origin of principal farm products imported into the United States, 1912–1915*—Continued.

Article, and country from which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
ANIMAL MATTER—continued.								
Packing-house products:								
Hides and skins, other than furs—								
Calf skins—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Belgium	4,222,034	4,724,643	5,157,640	978,751	4.0	5.0	6.3	2.1
Canada	6,192,704	5,930,010	5,734,207	4,441,310	5.9	6.3	7.0	9.7
France	5,134,402	4,991,299	5,800,673	7,406,904	4.9	5.3	7.0	16.1
Germany	21,886,652	16,916,203	16,560,316	2,613,289	20.8	17.9	20.1	5.7
Netherlands	8,582,182	8,142,510	12,006,926	4,152,980	8.2	8.6	14.6	9.0
Russia (European)	31,035,801	30,247,647	19,747,462	1,471,713	29.5	32.0	24.0	3.2
Other countries	28,198,714	23,606,823	17,396,366	24,901,754	26.7	24.9	21.0	54.2
Total	105,252,489	94,559,135	82,403,590	45,966,701	100.0	100.0	100.0	100.0
Cattle hides—								
Argentina	83,662,262	67,041,938	79,787,332	113,366,344	33.3	25.0	28.5	33.9
Belgium	9,073,305	7,106,337	7,313,906	3,416,605	3.6	2.7	2.6	1.0
Brazil	714,256	1,743,956	3,259,873	23,223,310	.3	.7	1.2	6.9
Canada	29,769,745	41,608,176	46,588,543	33,453,572	11.9	15.5	16.6	10.0
Colombia	6,303,727	5,461,505	5,098,244	8,394,503	2.5	2.0	1.8	2.5
Cuba	4,366,121	2,840,141	5,528,502	15,260,111	1.7	1.1	2.0	4.6
East Indies	3,175,040	6,929,176	4,474,768	5,705,638	1.3	2.6	1.6	1.7
France	15,573,978	20,102,370	19,036,552	7,951,693	6.2	7.5	6.8	2.4
Germany	7,246,577	9,787,312	4,989,795	811,463	2.9	3.7	1.8	0.2
Italy	4,853,634	2,411,973	1,967,552	3,125,932	1.9	.9	.7	0.9
Mexico	28,103,124	29,500,427	33,194,289	43,378,992	11.2	11.0	11.9	13.0
Netherlands	6,580,433	7,270,864	4,099,899	2,870,004	2.6	2.7	1.5	0.9
Russia (European)	9,044,482	22,906,231	9,043,103	693,102	3.6	8.5	3.2	0.2
United Kingdom	9,262,242	8,588,600	11,204,957	6,455,342	3.7	3.2	4.0	1.9
Uruguay	10,933,642	7,244,806	13,403,443	21,809,611	4.4	2.7	4.8	6.5
Venezuela	5,555,809	4,470,501	5,149,398	7,033,582	2.2	1.7	1.8	2.1
Other countries	16,794,136	23,028,077	25,823,332	37,391,613	6.7	8.5	9.2	11.3
Total	251,012,513	268,042,390	279,963,488	334,341,417	100.0	100.0	100.0	100.0
Goatskins—								
Aden	3,338,868	3,129,594	3,595,909	2,262,386	3.5	3.3	4.2	3.5
Africa	2,834,130	2,625,746	2,817,948	1,295,740	3.0	2.7	3.3	1.9
Argentina	5,323,163	4,276,365	3,470,013	3,738,020	5.6	4.4	4.1	5.6
Brazil	3,600,012	3,357,781	4,191,124	4,260,495	3.8	3.5	4.9	6.4
China	7,107,859	9,827,646	7,304,761	7,897,387	7.5	10.2	8.6	11.9
East Indies	41,069,568	41,594,938	35,831,857	28,651,497	43.1	43.2	42.3	43.1
France	2,489,532	2,406,371	2,171,224	1,891,445	2.6	2.5	2.6	2.8
Mexico	5,241,903	4,815,304	4,010,150	3,507,940	5.5	5.0	4.7	5.3
Russia (European)	7,299,991	7,183,542	5,131,075	1,556,154	7.7	7.5	6.1	2.3
United Kingdom	5,954,074	5,436,922	5,281,468	4,089,212	6.2	5.6	6.2	6.1
Other countries	11,081,603	11,596,096	10,953,899	7,396,887	11.5	12.1	13.0	11.1
Total	95,340,703	96,250,305	84,759,428	66,547,163	100.0	100.0	100.0	100.0
Sheepskins—								
Argentina	5,566,064	6,848,065	3,874,944	8,692,846	9.2	9.5	5.5	14.8
Brazil	1,134,635	993,321	1,582,333	1,384,888	1.9	1.4	2.3	2.4
British Oceania	5,655,170	8,179,576	9,848,498	11,107,719	9.4	11.4	14.1	18.9
Canada	1,478,584	1,860,948	3,678,117	4,102,461	2.4	2.6	5.2	7.0
France	2,158,832	2,999,829	2,221,769	823,209	3.6	4.2	3.2	1.4
Russia (European)	7,148,565	8,484,377	9,158,287	826,898	11.8	11.8	13.1	1.4
United Kingdom	25,992,351	28,885,579	26,384,892	22,616,881	43.0	40.2	37.7	38.5
Other countries	11,266,108	13,533,024	13,327,985	9,264,636	18.7	18.9	18.9	15.6
Total	60,400,309	71,784,719	70,076,825	58,819,538	100.0	100.0	100.0	100.0

TABLE 196.—*Origin of principal farm products imported into the United States, 1912–1915*—Continued.

Article, and country from which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
VEGETABLE MATTER.								
Cocoa, crude:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Brazil	17,173,568	14,354,460	25,870,186	19,708,616	11.8	10.3	14.7	10.2
British West Indies	36,447,160	29,588,055	44,062,426	40,728,851	25.0	21.1	25.0	21.2
Dominican Republic	27,786,868	27,241,763	26,782,966	46,620,464	19.0	19.5	15.2	24.2
Ecuador	22,976,780	15,229,159	26,319,735	33,418,752	15.7	10.9	14.9	17.4
Portugal	18,954,405	23,040,617	17,738,638	3,516,655	13.0	16.5	10.1	1.8
United Kingdom	8,791,716	11,660,464	12,903,640	21,062,767	6.0	8.3	7.3	11.0
Other countries	13,838,448	18,924,654	22,590,055	27,250,529	9.5	13.4	12.8	14.2
Total	145,968,945	140,039,172	176,267,646	192,306,634	100.0	100.0	100.0	100.0
Coffee:								
Brazil	632,527,267	639,262,011	743,113,500	773,400,315	71.5	74.1	74.2	69.1
Central American States and British Honduras	39,264,532	32,172,524	40,202,480	75,350,258	4.4	3.7	4.0	6.7
Colombia	62,912,252	89,684,514	91,830,513	111,077,449	7.1	10.4	9.2	9.9
East Indies	12,907,807	7,559,765	8,673,941	10,898,139	1.5	.9	.7	1.0
Mexico	34,156,025	26,121,439	49,385,504	52,706,120	3.9	3.0	4.9	4.7
Netherlands	1,941,746	1,956,676	5,811,934	1,583,672	.2	.2	.6	.1
Venezuela	47,109,521	49,671,060	49,953,478	72,463,140	5.3	5.8	5.0	6.5
West Indies and Bermuda	8,061,867	4,110,032	4,711,269	16,230,552	.9	.5	.5	1.5
Other countries	46,320,230	12,596,736	7,845,698	4,980,879	5.2	1.4	.9	.5
Total	885,201,247	863,130,757	1,001,528,317	1,118,690,524	100.0	100.0	100.0	100.0
Fibers, vegetable:								
Cotton—								
Egypt	85,103,780	94,333,483	63,668,055	117,596,646	77.5	77.4	51.6	63.5
Peru	4,848,201	4,871,835	6,455,946	5,262,394	4.4	4.0	5.2	2.8
United Kingdom	10,356,921	8,354,253	2,557,041	3,866,732	9.4	6.9	2.1	2.1
Other countries	9,471,169	14,292,445	50,665,857	58,478,807	8.7	11.7	41.1	31.6
Total	109,780,071	121,852,016	123,346,899	185,204,579	100.0	100.0	100.0	100.0
Flax—	*Long tons.*	*Long tons.*	*Long tons.*	*Long tons.*				
Belgium	2,434	1,919	1,266	122	22.3	15.4	12.8	2.6
Russia, European	2,535	4,450	2,735	336	23.3	35.8	27.7	7.2
United Kingdom	4,251	4,464	5,076	3,749	39.0	35.9	51.4	79.9
Other countries	1,680	1,588	808	487	15.4	12.9	8.1	10.3
Total	10,900	12,421	9,885	4,694	100.0	100.0	100.0	100.0
Jute and jute butts—								
British East Indies	99,100	120,511	100,755	80,444	98.1	96.1	95.0	96.8
Other countries	1,901	4,878	5,278	2,696	1.9	3.9	5.0	3.2
Total	101,001	125,389	106,033	83,140	100.0	100.0	100.0	100.0
Manila fiber—								
Philippine Islands	66,923	69,629	49,285	50,587	97.6	94.3	99.2	99.0
Other countries	1,613	4,194	403	494	2.4	5.7	.8	1.0
Total	68,536	73,823	49,688	51,081	100.0	100.0	100.0	100.0
Sisal grass—								
Mexico	103,683	136,559	195,086	175,884	90.6	88.8	90.5	94.7
Other countries	10,784	17,310	20,461	9,880	9.4	11.2	9.5	5.3
Total	114,467	153,869	215,547	185,764	100.0	100.0	100.0	100.0

TABLE 196.—*Origin of principal farm products imported into the United States, 1912–1915*—Continued.

Article, and country from which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
VEGETABLE MATTER—contd.								
Fruits:								
Bananas—								
British West Indies	*Bunches.* 15,474,513	*Bunches.* 11,164,894	*Bunches.* 15,677,191	*Bunches.* 11,957,935	*Per ct.* 34.8	*Per ct.* 26.4	*Per ct.* 32.2	*Per ct.* 29.1
Central American States and British Honduras	23,631,604	25,108,590	25,432,760	22,470,600	53.1	59.3	52.1	54.7
Cuba	2,478,581	2,213,733	2,354,395	2,708,624	5.6	5.2	4.8	6.6
South America	1,804,536	2,869,247	2,271,866	1,567,461	4.1	6.8	4.7	3.8
Other countries	1,131,305	1,000,645	2,947,380	2,386,965	2.4	2.3	6.2	5.8
Total	44,520,539	42,357,109	48,683,592	41,091,585	100.0	100.0	100.0	100.0
Nuts:								
Walnuts—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
Austria-Hungary	771,003	4,409	514,455	....	2.1	.0	1.4	......
France	24,145,579	20,379,294	19,020,143	18,716,938	64.9	76.4	51.1	56.0
Italy	5,143,873	3,315,483	6,275,717	6,440,934	13.8	12.4	16.9	19.3
Turkey (Asiatic)	718,915	424,418	1,712,209	15,844	1.9	1.6	4.6	.0
Other countries	6,434,304	2,538,837	9,673,204	8,272,122	17.3	9.6	26.0	24.7
Total	37,213,674	26,662,441	37,195,728	33,445,838	100.0	100.0	100.0	100.0
Oil, vegetable:								
Olive, salad—	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*				
France	809,629	932,536	949,858	802,092	16.7	17.9	15.3	11.9
Italy	3,245,863	3,584,945	4,319,567	4,864,388	67.1	68.7	69.5	72.5
Other countries	781,023	703,520	948,135	1,044,487	16.2	13.4	15.2	15.6
Total	4,836,515	5,221,001	6,217,560	6,710,967	100.0	100.0	100.0	100.0
Soy-bean oil—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
Japan	13,357,373	7,979,144	6,425,306	5,471,911	47.7	64.7	39.3	28.5
United Kingdom	9,874,210	2,523,321	1,453,932	906,134	35.2	20.4	8.9	4.7
Other countries	4,789,699	1,837,720	8,481,214	12,828,476	17.1	14.9	51.8	66.8
Total	28,021,282	12,340,185	16,360,452	19,206,521	100.0	100.0	100.0	100.0
Opium:								
Turkey (Asiatic and European)	274,712	420,406	383,489	440,529	68.7	82.7	83.2	91.0
United Kingdom	82,782	61,782	39,372	38,258	20.7	12.2	8.6	7.9
Other countries	42,343	26,245	32,339	5,240	10.6	5.1	8.2	1.1
Total	399,837	508,433	455,200	484,027	100.0	100.0	100.0	100.0
Seeds:								
Flaxseed or linseed—	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*				
Argentina	1,210,628	429,254	....	3,927,542	17.7	8.1	......	36.8
Belgium	357,480	157	3	....	5.2	.0	.0	......
British India	1,525,310	128,981	50	39,990	22.3	2.4	.0	.4
Canada	3,510,883	4,732,316	8,647,168	6,629,860	51.3	89.4	99.9	62.2
United Kingdom	183,119	2,453	6,010	....	2.7	.0	.1	......
Other countries	54,386	1,135	4	68,823	.8	.1	.0	.6
Total	6,841,806	5,294,296	8,653,235	10,666,215	100.0	100.0	100.0	100.0
Grass seed—								
Clover—	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
Canada	3,551,792	2,887,143	5,741,516	1,525,080	9.2	13.6	19.1	6.3
France	8,882,820	6,857,096	15,402,710	18,879,326	23.0	32.3	51.2	78.2
Germany	12,951,378	5,655,558	4,200,141	336,575	33.6	26.6	14.0	1.4
Italy	5,823,223	2,816,795	44,000	340,246	15.1	13.3	.1	1.4
Other countries	7,341,924	3,007,965	4,719,282	3,075,484	19.1	14.2	15.6	12.7
Total	38,551,137	21,224,557	30,107,649	24,156,711	100.0	100.0	100.0	100.0

TABLE 196.—*Origin of principal farm products imported into the United States, 1912–1915*—Continued.

Article, and country from which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
VEGETABLE MATTER—contd.								
Sugar, raw cane:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Cuba	3,186,630,468	4,311,744,043	4,926,606,243	4,784,888,157	77.9	94.7	97.3	88.3
Dutch East Indies	340,396,410	12,759,756	....	22,235	8.3	.3	....	.0
Philippine Islands	435,570,122	203,160.972	116,749,211	326,842,296	10.6	4.5	2.3	6.0
Santo Domingo	17,681,938	2,670,630	4,316,282	86,188,211	.4	.1	.1	1.6
South America	75,977,074	20,047,828	9,386,732	117,892,772	1.9	.4	.2	2.2
Other countries	35,873,706	3,666,643	4,506,153	102,796,811	.9	.0	.1	1.9
Total	4,092,129,718	4,554,049,872	5,061,564,621	5,418,630,482	100.0	100.0	100.0	100.0
Tea:								
Canada	2,558,583	3,024,508	3,112,383	3,446,615	2.5	3.2	3.4	3.6
China	17,605,670	23,728,418	20,139,342	23,100,548	17.4	25.0	22.1	23.8
East Indies	13,760,787	10,411,288	10,551,735	12,643,303	13.6	11.0	11.6	13.0
Japan	53,747,386	44,381,278	41,913,273	43,869,012	53.0	46.8	46.0	45.2
United Kingdom	12,887,949	12,238,114	14,077,601	12,869,968	12.7	12.9	15.4	13.3
Other countries	846,441	1,029,194	1,336,481	1,058,496	.8	1.1	1.5	1.1
Total	101,406,816	94,812,800	91,130,815	96,987,942	100.0	100.0	100.0	100.0
Tobacco, leaf:								
Wrapper—								
Netherlands	6,290,499	6,193,042	5,846,504	7,061,943	97.2	96.8	96.0	97.5
Other countries	179,513	205,740	246,283	179,235	2.8	3.2	4.0	2.5
Total	6,470,012	6,398,782	6,092,787	7,241,178	100.0	100.0	100.0	100.0
Other leaf—								
Cuba	22,744,032	27,553,759	26,617,545	21,987,848	48.9	45.1	49.3	57.1
Germany	518,078	1,659,390	456,445	91,578	1.1	2.7	.8	.2
Turkey (Asiatic)	11,233,546	18,955,295	15,616,543	6,714,654	24.1	31.0	28.9	17.4
Turkey (European)	10,371,907	10,816,048	8,502,742	5,950,915	22.3	17.7	15.7	15.4
Other countries	1,669,204	2,071,471	2,821,450	3,778,555	3.6	3.5	5.3	9.9
Total	46,536,767	61,055,963	54,014,725	38,523,550	100.0	100.0	100.0	100.0
FOREST PRODUCTS.								
India rubber, crude:								
Belgium	6,101,346	5,917,440	11,005,246	1,902,370	5.5	5.2	8.3	1.1
Brazil	46,762,744	43,518,861	40,641,305	48,753,670	42.4	38.4	30.8	28.3
Central American States and British Honduras	1,390,555	989,772	565,487	949,865	1.3	.9	.4	.6
East Indies	6,338,130	12,255,500	16,597,105	27,898,683	5.8	10.8	12.6	16.2
France	4,139,109	2,968,232	2,629,287	685,699	3.8	2.6	2.0	.4
Germany	8,820,516	7,790,742	7,079,260	739,105	8.0	6.9	5.4	.4
Mexico	2,226,541	2,033,791	641,029	1,668,415	2.0	1.8	.5	1.0
Portugal	1,449,790	873,249	556,560	4,130,624	1.3	.8	.4	2.4
United Kingdom	29,728,994	34,164,908	48,279,674	75,168,236	27.0	30.1	36.6	43.7
Other countries	3,252,448	2,871,864	4,000,789	10,171,761	2.9	2.5	3.0	5.9
Total	110,210,173	113,384,359	131,995,742	172,068,428	100.0	100.0	100.0	100.0
Wood:								
Cabinet woods, mahogany—	*M feet.*	*M feet.*	*M feet.*	*M feet.*				
British Africa	3,254	7,655	12,888	6,941	7.5	11.5	18.3	16.4
Central American States and British Honduras	12,732	13,526	23,356	17,954	29.5	20.4	33.1	42.4
Mexico	10,596	10,866	10.381	7,444	24.5	16.4	14.7	17.6
United Kingdom	10,428	20,866	18,289	6,593	24.1	31.5	26.0	15.6
Other countries	6,184	13,405	5,556	3,393	14.4	20.2	7.9	8.0
Total	43,194	66,318	70,470	42,325	100.0	100.0	100.0	100.0

TABLE 196.—*Origin of principal farm products imported into the United States, 1912–1915*—Continued.

Article, and country from which consigned.	Quantity.				Per cent of total.			
	Year ending June 30—							
	1912	1913	1914	1915 (preliminary).	1912	1913	1914	1915 (preliminary).
FOREST PRODUCTS—continued.								
Wood—Continued.								
Boards, planks, deals, and other sawed lumber—	*M feet.*	*M feet.*	*M feet.*	*M feet.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Canada	870,323	1,021,810	892,833	908,663	96.2	93.7	96.1	96.7
Other countries	34,829	68,818	36,040	30,659	3.8	6.3	3.9	3.3
Total	905,152	1,090,628	928,873	939,322	100.0	100.0	100.0	100.0
Wood pulp:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*				
Canada	468,870,801	463,877,981	524,251,441	660,656,640	43.8	41.2	46.0	50.2
Germany	147,030,609	151,481,033	149,171,214	83,119,680	13.7	13.4	13.1	6.3
Norway	166,097,531	189,951,459	181,255,024	200,934,720	15.5	16.9	15.9	15.3
Sweden	238,613,758	283,916,347	265,457,874	350,183,680	22.3	25.2	23.3	26.6
Other countries	49,005,759	37,298,387	18,591,642	22,050,560	4.7	3.3	1.7	1.6
Total	1,069,618,458	1,126,525,207	1,138,727,195	1,316,945,280	100.0	100.0	100.0	100.0

TABLE 197.—*Rural and agricultural population in various countries.*

Country.	Rural population.			Population dependent upon agriculture.		
	Year.	Number.	Per cent of total population.	Year.	Number.	Per cent of total population.
United States	1910	49,348,883	53.7			
Austria-Hungary:						
Austria				1900	13,447,362	51.4
Hungary				1900	13,061,118	67.8
Total Austria-Hungary				1900	26,508,480	58.4
Belgium	1910	1,654,277	22.3			
British India				1901	191,691,731	65.1
Bulgaria				1905	3,089,301	76.6
Denmark	1911	1,647,350	59.7	1911	1,023,962	37.1
Finland				1900	1,555,357	57.3
France	1906	22,715,011	57.9	1891	17,435,888	45.7
Germany				1907	17,089,496	27.7
Norway				1900	854,787	38.5
Portugal	1890	3,458,996	68.5	1900	3,367,199	62.1
Roumania	1900	4,836,904	81.2			
Russia:						
Caucasus				1897	7,266,428	78.2
Central Asia				1897	6,361,466	82.1
Poland				1897	5,302,850	56.4
Russia proper				1897	69,470,360	74.3
Siberia				1897	4,448,456	77.2
Total Russia				1897	92,849,560	73.9
Serbia				1900	2,097,988	84.2
Sweden				1900	2,344,612	45.6
Switzerland	1900	1,047,795	31.6	1900	1,067,905	32.2
United Kingdom:						
England and Wales	1911	7,907,556	21.9			

TABLE 198.—*Number of persons engaged in agriculture in various countries.*

Country.	Year.	Males.		Females.		Total persons engaged in agriculture.	
		Number.	Per cent of males in all occupations.	Number.	Per cent of females in all occupations.	Number.	Per cent of persons in all occupations.
United States	1910	10,582,039	35.2	1,806,584	22.4	12,388,623	32.5
Algeria	1881	636,078	74.8	91,602	53.7	727,680	71.3
Argentina	1895	318,119	28.0	67,174	13.4	385,323	23.6
Australia	1901	377,626	29.5	39,029	11.1	416,655	25.6
Austria-Hungary	1900	8,185,250	58.5	5,935,805	70.3	14,121,055	63.0
Belgium	1900	533,665	23.6	163,707	17.6	697,372	21.9
Bolivia	1900	....	....	....	....	564,009	43.5
British India	1901	63,026,365	67.3	27,867,210	66.5	90,893,575	67.1
British North Borneo	1901	....	....	....	....	32,892	64.2
Bulgaria	1905	895,206	73.3	837,406	94.9	1,732,612	82.4
Canada	1901	707,997	45.4	8,940	3.7	716,937	39.9
Ceylon	1901	745,074	65.0	318,551	65.4	1,063,625	65.1
Chile	1907	448,546	50.3	21,877	6.2	470,423	37.7
Cuba	1907	364,821	52.2	3,110	4.2	367,921	47.6
Cyprus	1901	33,611	62.8	2,757	20.8	36,368	54.5
Denmark	1911	386,016	45.7	110,169	28.5	496,185	40.3
Egypt	1907	2,258,005	67.2	57,144	33.3	2,315,149	65.6
Federated Malay States	1901	115,027	28.2	52,324	82.7	167,351	35.5
Finland	1900	321,538	51.4	102,008	39.6	423,546	48.0
Formosa	1905	763,456	70.6	263,664	82.4	1,027,120	73.3
France	1906	5,452,392	41.9	3,324,661	43.2	8,777,053	42.4
Germany	1907	5,146,723	27.7	4,585,749	48.3	9,732,472	34.6
Greece	1907	321,120	47.3	6,972	12.2	328,092	44.6
Grenada	1901	8,816	57.1	7,722	49.7	16,538	53.4
Italy	1901	6,370,277	57.9	3,196,063	60.5	9,566,340	58.8
Jamaica	1911	....	....	....	....	271,493	66.1
Malta and Gozo	1901	10,235	13.3	3,613	15.8	13,848	13.9
Mauritius	1901	72,493	57.1	5,989	38.0	78,482	55.0
Netherlands	1899	490,694	32.9	79,584	18.4	570,278	29.6
New Zealand	1911	103,644	28.5	7,472	8.3	111,116	24.5
Norway	1910	....	....	....	....	307,528	33.4
Philippine Islands	1903	1,163,777	57.8	90,286	8.8	1,254,063	41.3
Porto Rico	1899	196,893	73.3	1,868	3.9	198,761	62.8
Portugal	1900	1,127,268	65.3	380,293	52.0	1,507,561	61.4
Russia:							
In Europe	1897	13,808,505	59.6	1,974,164	38.0	15,782,669	55.6
In Asia	1897	2,092,965	69.2	105,137	30.5	2,198,102	65.3
Total	1897	15,901,470	60.7	2,079,301	37.5	17,980,771	56.7
St. Lucia	1901	....	....	....	....	15,796	54.1
Serbia	1900	311,700	65.5	13,524	50.5	325,224	64.7
Sierra Leone	1901	8,705	28.7	4,544	21.7	13,249	25.9
Spain	1900	3,741,730	58.1	775,270	51.8	4,517,000	56.9
Sweden	1900	761,016	52.4	333,264	53.8	1,094,280	52.8
Switzerland	1900	392,971	37.1	80,326	16.1	473,297	30.4
Trinidad and Tabago	1901	51,744	54.7	25,765	39.3	77,509	48.4
Union of South Africa	1904	863,223	56.3	847,057	77.5	1,710,280	65.1
United Kingdom	1901	2,109,812	16.3	152,642	2.9	2,262,454	12.4

TABLE 199.—*Total area and agricultural land in various countries.*

[As classified and reported by the International Institute of Agriculture.]

Country.	Year.	Total area.	Productive land.[1]		Cultivated land.[2]	
			Amount.	Per cent of total area.	Amount.	Per cent of total area.
NORTH AMERICA.		*Acres.*	*Acres.*	*Per cent.*	*Acres.*	*Per cent.*
United States	1910	1,903,269,000	878,789,000	46.2	293,794,000	15.4
Canada	1901	2,397,082,000	63,420,000	2.6	19,880,000	.8
Costa Rica	1909–10	13,343,000	3,090,000	23.2	442,000	3.3
Cuba	1899	28,299,000	8,717,000	30.8	778,000	2.7
SOUTH AMERICA.						
Argentina	1909–10	729,575,000	537,805,000	73.7	44,446,000	6.1
Chile[3]	1910–11	187,145,000	15,144,000	8.1	2,557,000	1.4
Uruguay	1908	46,189,000	40,875,000	88.5	1,962,000	4.2
EUROPE.						
Austria-Hungary:						
Austria	1911	74,132,000	69,939,000	94.3	26,272,000	35.4
Hungary	1910	80,272,000	77,225,000	96.2	35,178,000	43.8
Total Austria-Hungary	....	154,404,000	147,164,000	95.3	61,450,000	39.8
Belgium	1895	7,278,000	6,443,000	88.5	3,582,000	49.2
Bulgaria	1910	23,807,000	18,959,000	79.6	8,574,000	36
Denmark	1907	9,629,000	9,078,000	94.3	6,376,000	66.2
Finland	1901	82,113,000	....	....	3,875,000	4.7
France	1910	130,854,000	123,642,000	94.5	59,124,000	45.2
Germany	1900	133,594,000	126,401,000	94.6	63,689,000	47.7
Italy	1911	70,839,000	65,164,000	92	33,815,000	47.7
Luxemburg	1911	639,000	616,000	96.4	300,000	46.9
Netherlands	1911	8,057,000	7,258,000	90.1	2,210,000	27.4
Norway	1907	79,810,000	22,942,000	28.7	1,830,000	2.3
Portugal	1912	22,018,000	17,281,000	78.5	5,777,000	26.2
Roumania	1905	32,167,000	24,645,000	76.6	14,829,000	46.1
Russia, European	1911	1,278,203,000	698,902,000	54.7	245,755,000	19.2
Serbia	1897	11,936,000	6,246,000	52.3	2,534,000	21.2
Spain	1908–11	124,666,000	112,665,000	90.4	41,264,000	33.1
Sweden	1911	110,667,000	65,196,000	58.9	9,144,000	8.3
Switzerland[4]	1905	10,211,000	7,635,000	74.8	605,000	5.9
United Kingdom:						
Great Britain	1911	56,802,000	47,737,000	84	14,587,000	25.7
Ireland	1911	20,350,000	18,789,000	92.3	3,275,000	16.1
Total United Kingdom	....	77,152,000	66,526,000	86.2	17,862,000	23.2
ASIA.						
British India	1910–11	615,695,000	465,706,000	75.6	264,858,000	43
Formosa	1911	8,858,000	1,972,000	22.3	1,884,000	21.3
Japan	1911	94,495,000	74,180,000	78.5	17,639,000	18.7
Russia, Asiatic	1911	4,028,001,000	715,838,000	17.8	33,860,000	.8
AFRICA.						
Algeria	1910	124,976,000	50,846,000	40.7	11,434,000	9.1
Egypt	1912	222,390,000	5,486,000	2.5	5,457,000	2.5
Tunis	1912	30,888,000	22,239,000	72	6,919,000	22.4
Union of South Africa	1909–10	302,827,000	3,569,000	1.2	3,385,000	1.1
OCEANIA.						
Australia	1910–11	1,903,664,000	119,942,000	6.3	14,987,000	.8
New Zealand	1910	66,469,000	57,310,000	86.2	6,955,000	10.5
Total, 36 countries	....	15,071,209,000	4,591,691,000	30.5	1,313,832,000	8.7

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[1] Includes besides cultivated land, also natural meadows and pastures, forests, woodlots, and lands devoted to cultivated trees and shrubs.

[2] Includes fallow lands; also artificial grass lands.

[3] The figure for "productive land" in Chile excludes marshes, heaths, and productive but uncared-for lands.

[4] The figure for "cultivated land" in Switzerland excludes artificial meadows and pastures.

NATIONAL FORESTS.

TABLE 200.—*National forests: Timber disposed of, quantity, price, and number of users, revenue under specified heads, and details of grazing privileges, years ended June 30, 1910 to 1915.*

[Reported by the Forest Service.]

Item.	Year ended June 30—					
	1910	1911	1912	1913	1914	1915
Free timber given:						
Number of users	35,364	40,660	38,749	38,264	39,466	40,040
Timber cut ....M ft..	104,796	123,488	123,233	121,750	120,575	123,259
Value ....dolls..	176,167	196,930	196,335	191,825	183,223	206,597
Timber sales:						
Number	5,398	5,653	5,772	6,182	8,303	10,905
Quantity ....M ft..	574,555	830,304	799,417	2,137,311	1,540,084	1,093,589
Price per thousand board feet (average) .....dolls..	2.44	2.56	2.00	2.01	2.30	2.44
Kinds of stock:						
Cattle ....No..	1,409,873	1,351,922	1,403,025	1,455,922	1,508,639	1,627,321
Goats ....No..	90,300	77,668	83,849	76,898	58,616	51,409
Hogs ....No..	3,145	4,500	4,330	3,277	3,381	2,792
Horses ....No..	84,552	91,516	95,343	97,919	108,241	96,933
Sheep ....No..	7,558,650	7,371,747	7,467,890	7,790,953	7,560,186	7,232,276
Total ....No..	9,146,520	8,897,353	9,054,437	9,424,969	9,239,063	9,010,731
Revenue:						
From—						
Timber sales ....dolls..	940,090	935,128	994,314	1,282,647	1,243,195	1,244,985
Timber settlements,[1] dollars	67,562	22,035	33,287	36,105	39,927	3,181
Penalties for timber trespass ....dolls..	35,142	43,236	40,291	17,558	12,981	7,284
Turpentine sales,[2] dollars	....	....	....	....	15,372	8,915
Fire trespass ....dolls..	634	14,371	21,810	5,028	7,950	661
Special uses[3] ...dolls..	59,811	76,646	48,249	67,278	68,773	78,921
Grazing fees ....dolls..	978,956	930,966	962,175	1,001,156	997,583	1,130,175
Grazing trespass, dollars	7,953	4,524	6,667	6,583	4,765	5,818
Water power ...dolls..	....	....	50,563	51,235	47,164	89,104
Total revenue .dolls..	2,090,148	2,026,906	2,157,356	2,467,590	2,437,710	[4] 2,569,044

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[1] Includes timber taken in the exercise of permits for rights of way, development of power, etc.
[2] Prior to 1914 receipts from sale of turpentine were included with timber sales.
[3] Included under "Special use" prior to 1912.
[4] Refunds during year, $54,575.

TABLE 201.—*Area of national forest lands, June 30, 1915.*

[Reported by Forest Service.]

State and forest.	Net area.	State and forest.	Net area.
	Acres.		*Acres.*
Alaska:		Arkansas:	
Chugach	11,170,929	Arkansas	680,430
Tongass	15,455,694	Ozark	488,949
Total	26,626,623	Total	1,169,379
Arizona:		California:	
Apache	1,186,848	Angeles	887,964
Chiricahua[1]	348,971	California	822,137
Coconino	1,601,523	Cleveland	883,041
Coronado	962,690	Crater[1]	51,263
Crook	867,286	Eldorado[1]	549,350
Dixie[1]	605,646	Inyo[1]	1,252,288
Kaibab	1,072,411	Kern	1,268,697
Manzano[1]	27,708	Klamath[1]	1,471,017
Prescott	1,341,763	Lassen	1,013,143
Sitgreaves	667,408	Modoc	1,182,817
Tonto	1,998,144	Mono[1]	801,514
Tusayan	1,607,727	Monterey	438,765
		Plumas	1,147,556
Total	12,288,125	Santa Barbara	1,698,008
		Sequoia	926,255

[1] For total area, see "National Forests extending into two States."

TABLE 201.—*Area of national forest lands, June 30, 1915*—Continued.

State and forest.	Net area.
California—Continued.	*Acres.*
Shasta	828,205
Sierra	1,495,066
Siskiyou[1]	349,772
Stanislaus	822,269
Tahoe[1]	546,630
Trinity	1,430,446
Total	19,866,203
Colorado:	
Arapaho	636,980
Battlement	653,199
Cochetopa	902,924
Colorado	495,826
Durango	615,221
Gunnison	908,658
Hayden[1]	66,318
Holy Cross	577,634
La Sal[1]	27,444
Leadville	935,566
Montezuma	699,523
Pike	1,143,772
Rio Grande	1,145,632
Routt	852,339
San Isabel	598,964
San Juan	610,733
Sopris	596,900
Uncompahgre	791,173
White River	848,875
Total	13,107,681
Florida:	
Florida	299,166
Idaho:	
Boise	1,046,438
Cache[1]	262,636
Caribou[1]	689,413
Challis	1,261,052
Clearwater	849,471
Coeur d'Alene	616,822
Idaho	1,193,392
Kaniksu[1]	199,480
Lemhi	1,067,146
Minidoka[1]	515,491
Nez Perce	1,693,858
Palisade[1]	296,984
Payette	832,047
Pend Oreille	666,356
Pocatello[1]	251,681
St. Joe	643,611
Salmon	1,622,925
Sawtooth	1,203,806
Selway	1,694,603
Targhee[1]	697,974
Weiser	563,640
Total	17,868,826
Kansas:	
Kansas	139,019
Michigan:	
Marquette	20,517
Michigan	62,640
Total	83,157
Minnesota:	
Minnesota	173,517
Superior	813,860
Total	987,377
Montana:	
Absaroka	843,675
Beartooth	663,844
Beaverhead	1,338,641
Bitterroot	1,047,013
Blackfeet	856,743
Cabinet	846,790
Montana—Continued.	*Acres.*
Custer	436,987
Deerlodge	835,986
Flathead	1,812,104
Gallatin	565,554
Helena	689,985
Jefferson	1,045,269
Kootenai	1,344,711
Lewis and Clark	817,411
Lolo	862,316
Madison	999,313
Missoula	996,254
Sioux[1]	102,138
Total	16,104,734
Nebraska:	
Nebraska	198,056
Nevada:	
Eldorado[1]	400
Humboldt	692,573
Inyo[1]	72,942
Moapa	282,543
Mono[1]	464,254
Nevada	1,238,455
Ruby	343,627
Santa Rosa	270,246
Tahoe	14,687
Toiyabe	1,907,983
Total	5,287,710
New Mexico:	
Alamo	667,743
Carson	876,959
Chiricahua[1]	127,398
Datil	2,690,365
Gila	1,438,023
Jemez	723,170
Lincoln	553,047
Manzano[1]	758,766
Pecos	634,040
Total	8,469,511
North Dakota:	
Dakota	6,414
Oklahoma:	
Wichita	61,480
Oregon:	
Cascade	1,019,505
Crater	753,403
Deschutes	804,748
Fremont	777,202
Klamath[1]	4,006
Malheur	1,057,682
Minam	399,025
Ochoco	716,902
Oregon	1,030,765
Paulina	806,760
Santiam	594,292
Siskiyou[1]	999,992
Siuslaw	529,705
Umatilla	499,093
Umpqua	969,558
Wallowa	994,314
Wenaha[1]	425,444
Whitman	877,596
Total	13,259,992
Porto Rico:	
Luquillo	32,975
South Dakota:	
Black Hills	485,389
Harney	565,260
Sioux[1]	78,559
Total	1,129,208

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[1] For total area, see "National Forests extending into two States."

TABLE 201.—*Area of national forest lands, June 30, 1915*—Continued.

State and forest.	Net area.
	Acres.
Utah:	
Ashley[1]	982,643
Cache[1]	260,741
Dixie[1]	433,415
Fillmore	701,322
Fishlake	661,783
La Sal[1]	521,080
Manti	723,294
Minidoka[1]	69,733
Nebo	57,840
Pocatello[1]	6,325
Powell	690,469
Sevier	731,830
Uinta	995,757
Wasatch	612,928
Total	7,449,160
Washington:	
Chelan	687,183
Columbia	770,293
Colville	750,223
Kaniksu[1]	259,173
Okanogan	1,492,491
Olympic	1,536,079
Rainer	1,310,405
Snoqualmie	724,303
Washington—Continued.	
Washington	1,453,853
Wenaha[1]	311,519
Wenatchee	657,644
Total	9,953,166
Wyoming:	
Ashley[1]	5,987
Bighorn	1,123,585
Bonneville	607,173
Bridger	570,992
Caribou[1]	6,707
Hayden[1]	323,915
Medicine Bow	469,786
Palisade[1]	254,928
Shosbone	1,577,591
Sundance	144,922
Targhee	84,970
Teton	1,927,183
Washakie	387,569
Wyoming	899,980
Total	8,385,288
Grand total, National Forests	162,773,280

NATIONAL FORESTS EXTENDING INTO TWO STATES.

Forest.	States.	Net area.
		Acres.
Chiricahua	Arizona–New Mexico	476,369
Dixie	Arizona–Utah	1,039,061
Manzano	Arizona–New Mexico	786,474
Crater	California–Oregon	804,666
Eldorado	California–Nevada	549,750
Inyo	California–Nevada	1,325,230
Klamath	California–Oregon	1,475,023
Mono	California–Nevada	1,265,768
Siskiyou	California–Oregon	1,349,764
Tahoe	California–Nevada	561,317
Hayden	Colorado–Wyoming	390,233
La Sal	Colorado–Utah	548,524
Cache	Idaho–Utah	523,377
Caribou	Idaho–Wyoming	696,120
Kaniksu	Idaho–Washington	458,653
Minidoka	Idaho–Utah	585,224
Palisade	Idaho–Wyoming	551,912
Pocatello	Idaho–Utah	258,006
Targhee	Idaho–Wyoming	782,944
Sioux	Montana–South Dakota	180,697
Wenaha	Oregon–Washington	736,963
Ashley	Utah–Wyoming	988,630

[1] For total area, see "National Forests extending into two States."

TABLE 202.—*Grazing allowances for national forests, 1915.*

[Reported by the Forest Service.]

Forest.	Number of stock authorized.			Yearlong rates (cents).			
	Cattle and horses.	Swine.	Sheep and goats.	Cattle.	Horses.	Swine.	Sheep and goats.
District 1:							
Absaroka	+ 6,400		− 102,000	54	67		13.5
Beartooth	+ 4,030		− 51,150	54	67		13.5
Beaverhead	− 24,600		+ 116,500	54	67		13.5
Bitterroot	+ 3,680		− 39,250	54	67		13.5
Blackfeet	2,000		+ 10,000	48	60		12
Cabinet	+ 2,700		+ 22,250	51	67		13.5
Clearwater	− 2,800		− 86,200	8	60		12
Coeur d'Alene	500		25,000	54	67		13.5
Custer	18,000		12,000	54	67		13.5
Dakota	400			51	67		
Deerlodge	+ 15,700		− 62,000	54	67		13.5
Flathead	− 3,900		5,000	4	60		12
Gallatin	− 8,300		− 61,600	54	67		13.5
Helena	− 18,000		+ 107,000	54	67		13.5
Jefferson	− 15,100		− 125,350	54	67		13.5
Kaniksu	1,000		11,500	48	60		12
Kootenai	+ 1,800		+ 60,000	48	60		12
Lewis and Clark	+ 7,900		− 40,000	54	67		13.5
Lolo	2,000		25,000	54	67		13.5
Madison [1]	+ 21,300		+ 125,000	60	75		15
Missoula	7,800		32,500	54	67		13.5
Nezperce	10,000		50,000				
Districts 1-6				54	67		13.5
District 7				48	60		12
Pend Oreille	1,000		+ 50,000	48	60		12
Selway	5,500		3,900	48	60		12
Sioúx	− 8,100		− 3,300	51	67		13.5
St. Joe	+ 1,000		+ 78,000	48	60		12
	− 193,510		−1,304,500				
District 2:							
Arapaho	+ 12,400		+ 30,000	54	67		13.5
Battlement [1]	+ 43,200			54	67		
Bighorn [2]	+ 36,000		− 117,500	60	75		15
Black Hills	12,000			54	67		
Bonneville [1]	− 10,300		− 9,500	54	67		13.5
Bridger [1]	+ 15,900		+ 27,500	54	67		13.5
Cochetopa [1]	+ 17,200		+ 63,500	54	67		13.5
Colorado	+ 9,100		1,500	54	67		13.5
Durango [2]	− 12,200		− 68,700	54	67		13:5
Gunnison	+ 30,600			54	67		
Harney	12,000			54	67		
Hayden	7,000		120,000	54	67		13.5
Holy Cross [2]	+ 9,900		+ 32,000	54	67		13.5
Kansas	+ 13,100		500	72	90		18
Leadville	+ 12,200		+ 79,000	54	67		13.5
Medicine Bow	+ 9,500		− 62,000	54	67		13.5
Michigan	700		700	54	67		13.5
Minnesota	+ 2,000			54	67		
Montezuma	+ 29,600		+ 39,700	54	67		13.5
Nebraska [1]	13,000			72	90		
Pike	− 16,800		+ 20,800	54	67		13.5
Rio Grande	+ 22,900		+ 257,000	54	67		13.5
Routt	36,600		+ 91,000	54	67		13.5
San Isabel	13,700		+ 15,500	54	67		13.5
San Juan [2]	− 12,000		− 95,500	54	67		13.5
Shoshone [1]	+ 12,250		− 67,000	54	67		13.5
Sopris	+ 15,400		+ 61,000	54	67		13.5
Sundance	6,000	2,500		54	67	32	
Uncompahgre	+ 29,600		+ 57,600	54	67		13.5
Washakie [1]	+ 2,400		65,000	54	67		13.5
White River	+ 47,000		+ 15,000	54	67		13.5
	+ 522,550	2,500	+1,397,500				
District 3:							
Alamo	14,000	+ 75	13,000	48	60	29	12
Apache	31,500	100	61,500	48	60	29	12
Carson	+ 7,700		− 163,300	48	60		12
Chiricahua	12,000	300	2,000	48	60	29	12

+ or — indicates increase or decrease over 1914.

[1] Term applications authorized.

[2] Term applications previously approved effective till expiration of period.

TABLE 202.—*Grazing allowances for national forests, 1915*—Continued.

Forest.	Number of stock authorized.			Yearlong rates (cents).			
	Cattle and horses.	Swine.	Sheep and goats.	Cattle.	Horses.	Swine.	Sheep and goats.
District 3—Continued.							
Coconino[1]	− 40,900	− 240	− 94,000	48	60	29	12
Coronado	+ 23,200	....	+ 17,000	48	60	....	12
Crook	+ 18,000	....	− 2,500	48	60	....	12
Datil	+ 38,800	+ 220	138,000	48	60	29	12
Gila	+ 33,800	350	− 47,100	48	60	29	12
Jemez	8,200	+ 300	65,500	48	60	29	12
Lincoln	+ 9,400	+ 500	− 13,000	48	60	29	12
Manzano[2]	+ 9,300	....	+ 95,000	48	60	....	12
Pecos	8,900	+ 325	35,400	48	60	29	12
Prescott	+ 51,500	50	− 10,300	48	60	29	12
Sitgreaves	+ 10,800	....	77,000	48	60	....	12
Tonto	+ 75,000	+ 600	− 100	48	60	29	12
Tusayan[1]	− 25,900	− 50	− 71,100	48	60	29	12
	+ 418,900	+3,110	− 905,800	....	....	....	....
District 4:							
Ashley	+ 10,000	....	+ 97,000	60	75	....	15
Boise[1]	4,000	+ 100	140,000	54	67	32	13.5
Cache	+ 17,450	....	+ 127,360	54	67	....	13.5
Caribou	+ 12,000	....	− 297,000	54	67	....	13.5
Chailis[1]	+ 6,400	....	+ 81,500	54	67	....	13.5
Dixie	− 15,300	400	− 5,760	48	60	29	12
Fillmore	+ 19,200	+ 200	+ 47,900	60	75	36	15
Fishlake	+ 18,500	....	− 72,600	60	75	....	15
Humboldt	+ 25,700	....	− 305,500	54	67	....	13.5
Idaho[1]	+ 2,500	....	− 105,000	54	67	....	13.5
Kaibab[3]	− 10,450	....	5,000	48	60	....	12
La Sal	+ 27,600	....	+ 33,800	54	67	....	13.5
Lemhi	8,600	....	77,500	54	67	....	13.5
Manti[1]	+ 27,200	....	+ 150,400	60	75	....	15
Minidoka	+ 18,500	....	+ 75,000	54	67	....	13.5
Nevada[1]	+ 6,300	....	70,000	54	67	....	13.5
Palisade	+ 6,400	....	− 97,000	54	67	....	13.5
Payette	+ 6,650	....	− 96,000	54	67	....	13.5
Pocatello	11,400	....	30,800	54	67	....	13.5
Powell	+ 13,400	....	− 72,000	54	67	....	13.5
Ruby	16,200	....	+ 34,900	54	67	....	13.5
Salmon	14,700	....	100,000	54	67	....	13.5
Santa Rosa	− 14,500	....	− 58,500	54	67	....	13.5
Sawtooth[1]	6,200	....	− 313,000	54	67	....	13.5
Sevier	+ 10,800	+ 100	− 124,000	54	67	32	13.5
Targhee[1]	8,000	....	122,500	54	67	....	13.5
Teton	− 11,000	....	....	54	67	....	....
Toiyabe	17,500	....	− 27,500	54	67	....	13.5
Uinta[1]	− 30,200	....	− 188,200	60	75	....	15
Wasatch[4]	+ 14,800	....	+ 85,700	60	75	....	15
Weiser	+ 10,300	500	− 78,000	54	67	32	13.5
Wyoming[1]	10,000	....	+ 216,500	54	67	....	13.5
	+ 431,150	+1,300	−3,335,860	....	....	....	....
District 5:							
Angeles[3] [5]	4,100	....	+ 4,000	60	75	....	15
California	+ 6,200	1,000	− 59,000	60	75	36	15
Cleveland	4,000	....	+ 3,500	60	75	....	15
Eldorado[3]	+ 10,000	+ 50	+ 17,200	72	90	43	18
Inyo[3]	− 5,550	....	− 30,000	60	75	....	15
Klamath[3]	+ 8,000	600	2,000	56	70	34	14
Lassen	+ 12,500	200	− 38,000	64	80	38	16
Modoc	+ 41,300	....	+ 61,300	60	75	....	15
Mono	+ 4,630	....	+ 67,700	72	90	....	18
Monterey	+ 2,250	....	− 2,500	64	80	....	16
Plumas[3]	+ 14,400	....	+ 75,700	68	85	....	17
Santa Barbara[3]	− 8,000	300	− 3,000	64	80	38	16
Sequoia[3] [6]	+ 30,150	+3,300	− 10,950	72	90	43	18
Shasta	+ 9,600	+ 500	− 24,000	60	75	36	15
Sierra[3]	− 15,000	− 500	21,000	72	90	43	18

+ or − indicates increase or decrease over 1914.

---

[1] Term applications authorized.

[2] 5,800 cattle and horses, 50,000 sheep and goats added from Zuni Forest.

[3] Term applications previously approved effective till expiration of period.

[4] Approximately 4,100 cattle and horses, 70,000 sheep and goats added from Uinta Forest.

[5] 4,000 goats authorized on Angeles Forest for cleaning fire lanes.

[6] Approximately 18,000 cattle and horses, 1,300 swine added from Kern Forest.

TABLE 202.—*Grazing allowances for national forests, 1915*—Continued.

Forest.	Number of stock authorized.			Yearlong rates (cents).			
	Cattle and horses.	Swine.	Sheep and goats.	Cattle.	Horses.	Swine.	Sheep and goats.
District 5—Continued.							
Stanislaus[1]	17,000	− 200	+ 9,100	72	90	43	18
Tahoe	+ 7,800	+ 100	− 59,500	72	90	43	18
Trinity	+ 11,800	− 250	+ 19,600	56	70	34	14
	+ 212,280	−7,000	+ 508,050	....	....	....	....
District 6:							
Cascade[1]	900	....	33,000	64	80	38	16
Chelan	500	....	25,200	60	75	....	15
Columbia	+ 750	....	+ 25,000	64	80	....	16
Colville	+ 6,000	....	60,000	60	75	....	15
Crater	7,800	500	+ 8,700	64	80	38	16
Deschutes	+ 4,200	....	50,000	60	75	....	15
Fremont	− 13,500	....	+ 106,000	60	75	....	15
Malheur	21,000	+ 50	− 128,200	60	75	36	15
Minam	+ 10,900	....	+ 62,700	60	75	....	15
Ochoco	+ 11,900	....	− 94,000	60	75	....	15
Okanogan	+ 7,000	....	75,000	60	75	....	15
Olympic	+ 2,500	....	....	60	75	....	....
Oregon	+ 2,600	....	+ 32,000	64	80	....	16
Rainier	− 6,000	....	+ 49,000	64	80	....	16
Santiam[2]	300	....	− 22,200	64	80	....	16
Siskiyou	− 3,900	+ 750	+ 4,000	56	70	34	14
Siuslaw	1,200	....	4,000	56	70	....	14
Snoqualmie	....	....	+ 6,000	....	....	....	16
Tongass	+ 2,000	....	....	60	75	....	....
Umatilla	− 10,300	....	− 62,500	60	75	....	15
Umpqua	+ 1,200	....	12,000	64	80	....	16
Wallowa	+ 21,200	100	120,000	60	75	36	15
Washington	....	....	+ 15,000	....	....	....	16
Wenaha	+ 11,200	....	103,100	60	75	....	15
Wenatchee	− 550	....	− 69,900	64	80	....	16
Whitman	+ 8,850	....	− 113,000	60	75	....	15
	+ 159,250	+1,400	−1,280,500	....	....	....	....
District 7:							
Arkansas	15,000	22,000	2,000	48	60	29	12
Florida	6,000	3,000	7,000	48	60	29	12
Ozark	13,500	20,000	2,200	48	60	29	12
Wichita[3]	− 4,630	....	....	72	90	....	....
	+ 39,130	45,000	11,200	....	....	....	....
Purchase areas:							
Cherokee	1,500	400	200	1.50	2.00	90	45
Georgia	860	430	1,290	85	1.10	50	25
Massanutten	+ 200	....	+ 100	1.50	....	....	45
Mount Mitchell	− 600	+ 100	− 50	1.50	2.00	90	45
Nantahala	− 400	−2,100	− 150	1.50	2.00	90	45
Natural Bridge	− 100	....	....	1.50	2.00	....	....
Potomac	645	....	1,300	1.50	....	....	45
Savannah (N)	+ 200	+ 250	+ 200	1.50	2.00	90	45
Savannah (S)	+ 50	+ 50	+ 25	1.50	2.00	90	45
Shenandoah	+ 2,000	....	+ 150	1.50	2.00	....	45
White Top	− 450	400	− 150	1.50	2.00	90	45
	+ 7,005	−3,730	− 3,615	....	....	....	....
Total:							
1914	1,891,119	65,645	8,867,906	....	....	....	....
1915	1,983,775	64,040	8,747,025	....	....	....	....
Increase or decrease over 1914	+ 92,656	−1,605	− 120,881	....	....	....	....

+ or − indicates increase or decrease over 1914.

[1] Term applications previously approved effective till expiration of period.
[2] Term applications authorized.
[3] Transferred from District 3.

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